



STEPHEN BAXTER

*SUNDAY TIMES BESTSELLER*

# THE THOUSAND EARTHS

*'Fiercely intelligent'*

*GUARDIAN*

To the memory of my mother,  
b. Sarah Marion Richmond (1929–2018),  
my grandmother b. Sarah Elizabeth Moorhead (1895–1977),  
and my great-grandmother b. Sarah Hackett (1869–1940).

# THE THOUSAND EARTHS

STEPHEN BAXTER





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Credits

Also by Stephen Baxter

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John Hackett

AD 2154

It began with an ending.

It ended with a beginning.

Denise Libby had come all the way out to Jupiter, from Earth, to interview her ex-husband, John Hackett.

Now, alone in a tiny, automated shuttle, Denise Libby barely felt the push, barely heard the hiss of the steam-rocket engines as the craft lifted her from the surface of Callisto, moon of Jupiter. She said: ‘Hull to transparent.’

The cabin stayed opaque. Like a wall of dumb steel.

She’d been told that this was standard: local rules. Only long-term residents, the local police, emergency workers and other privileged folk were to be entrusted with the giddy sight of an ascent from, or descent to, any of Jupiter’s inhabited moons. Just too vertiginous a sight for a novice, so the rule went. Or, more likely, the burgeoning conflict between Earth and its Jovian colonies mandated secrecy on all sides. Weapons platforms to be glimpsed, perhaps. Even mining operations not authorised by Earth ...

*Bah.* She tried anyhow.

‘Hull to transparent,’ she said again.

John wasn’t even here *for* Jupiter, or Callisto, or interplanetary politics. Not directly. John would soon be heading out of this rich planetary system, with a crew of similarly minded suicidal idiots, on a one-way mission to the Andromeda galaxy. Hell of a thing, a round trip of five *million* light-years – and five million years one-way into the future.

And here she was being nursemaided by this dumb little toy ship.

‘Hull to transparent, damn it. Hull to transparent. Hull to—’

The hull turned transparent.

Now she seemed to be floating in a kind of outline of a craft, a box of slim but robust-looking girders holding together the bulky globe of a fusion engine, and fat propellant tanks. Other anonymous installations that were presumably the elements of the life-support system that kept her alive. All of this in a frame suspended in empty space.

And there, far below, was Callisto, a brownish sphere only dimly lit by the distant Sun. During the transit from Earth – a hundred days of continuous fusion-rocket thrust – there had been little for her to see or do. A journey spent in a kind of grim silence, without external comms. For, in a Solar System poised, it seemed, for war, such ships ran silent in the interplanetary night.

Now, though, at last, here was Callisto itself, suspended beneath her. The furthest out of Jupiter's four largest moons – larger than Earth's Moon – and covered by craters, it looked to Denise like a huge ball of glass peppered with gunshot impacts. In fact, she knew, this moon's surface was very ancient, some of those scars tremendously old. But the geology was quite unlike the superficially similar impact scarring of Earth's Moon, for *this* remote world was more than half water ice by mass. The craters were frozen splashes.

And *that* was why the governments of Earth had come here, bypassing the rogue, fractious, noisy, independent settlements in the asteroid belt. For water. Water to sustain human lives in habitats, water for fusion fuel for spacecraft, water not controlled by the monopolistic rock rats in the belt, water for rapidly advancing industry.

Industry that had already supported the construction of humanity's first crewed starship.

Which brought her focus back to the task in hand. Not that she could see anything yet of John or his craft, the *Perseus*, right now. She turned around, peering through the transparent hull, trying to orient herself by the tremendous cosmic entities arrayed around her: the Sun, Callisto, the brilliant sparks that were more of Jupiter's moons ... But where the hell was Jupiter itself?

At last, as she twisted around, she saw a fine crescent cradling a disc of darkness. A thin line, just a bow of ruddy light, the outer edge faintly diffuse against the deeper dark beyond.

But the inner edge was quite sharp. Technological. An artefact.

And suddenly it all came into focus. ‘*Oh*. I get it, Hackett. I can’t see Jupiter because your damn ship is so big it *eclipses* Jupiter. Almost.’

‘*Perseus* to Callisto shuttle.’ John’s smooth voice, sounding in the air.

‘You show-off bastard. It must have taken some navigation to set that stunt up. You might have warned me.’

‘Would you have listened? That *would* have been a first. I have you locked on to my docking system. Just sit tight, I’ll bring you in. And don’t go pressing any buttons.’

‘There aren’t any buttons—’

‘Our dark energy ramscoop is somewhat fragile. Mint tea – still your choice?’

It hadn’t been for years, even before the break-up. Even before the death of Sarah, their niece, the event which had ultimately driven that break-up. But it wasn’t a moment for scoring points, she knew. ‘Mint tea,’ she said calmly.

And, little by little, the cloud banks of Jupiter slipped out from behind the tremendous scoop-sail. King of the planets, eclipsed by a human artefact.

‘See you soon,’ said Hackett.

The smart shuttle had no trouble finding its way past the ramscoop sail, or rather *through* it. Close to, it turned out to be a kind of mesh of sparse threads, making an array of gaping holes, each a neat hexagon.

But, as the shuttle neared the structure, from Denise’s point of view it opened out into a wall across the sky. A wall, she reminded herself, against which fifteen planets the size of Earth could have been set in a row, and still leave room at the margins. And at each intersection of the thread mesh she saw technology, glittering knots, evidently complex.

‘I’m guessing I’m seeing the dark energy access stations,’ she murmured, as one of those great hexagonal gaps opened up around her.

‘Not all active yet,’ John called back. ‘We are still testing the sail, the integrity of the structure, the smart feedback and control mechanisms. I say *we* – everybody else has gone under already.’

‘The other six of the Andromeda seven. All in their float tanks?’

‘Where I will be joining them soon. To sleep through five gravities’ thrust for twelve years – or two and a half *million* years as the outside world will have it, thanks to relativity, as we approach the speed of light. All the way to the Andromeda galaxy.

‘As for me, there are final checks to be done as we ramp up to full operating thrust. At each node of the scoop we have a kind of particle accelerator, which sends a particular form of neutrino, called a sterile neutrino, into the higher-dimensional bulk in which our universe floats – *floats*, like a membrane in water. That’s where dark energy comes from. Our universe, our membrane, is expanding, like a balloon, because of mysterious currents in that strange higher ocean, so to speak. Which we can now tap, as an inexhaustible source of propellant if you will ...’

He was speaking in tidy, pre-digested paragraphs. The ones given to many press and government briefings before, no doubt.

‘John, have you really forgotten that I know all this? I worked with you when you were developing the proposal, you and your backers. Remember? I had to help you pitch it so it sounded like a technology for a long-range science mission—’

‘And they don’t come much longer-range than the Andromeda galaxy—’

‘And *not* just as a demonstrator for a fancy new technology that gets Earth away from depending on the rock rats back in the asteroids. No fusion engine, so no need for the rock rats’ precious water. And so much for their resource monopoly. Interplanetary politics, right?’

‘It’s to be regretted. We do what we can in the times we live in ... You should be through the scoop by now.’

It had been a while since she had looked out. She saw he was right. She had passed through that immense array, and now found herself floating in a kind of heaven of threads and nets, all softly illuminated by the distant Sun – and by the still dimmer light of Jupiter itself, that broad face with its sombre, churning bands of cloud. In a sense she was inside the distributed structure of the ship itself.

‘Can you see the habitat modules?’

She followed the threads; there had to be millions of them, but all the lines converged on a distant knot of technology. She touched a screen, pulled an image into the air, and magnified it. It was a blunt square, four rod-like modules fixed at their corners.

'I see you. Bring me in, John ...'

‘Welcome to the *Perseus*.’

He was wearing a vivid green jumpsuit, soft slippers. A UN logo on his breast.

They embraced, stiffly.

Then they drifted weightless through the ship, side by side.

The modules he ushered her through, floating in zero gravity, were the usual glistening space tech. Every square centimetre of every wall panel was smart, including those of the widely separated cabins within which John’s six crewmates were already sleeping the dreamless artificial sleep of induced hibernation. She was struck by the general use of green and blue tones within the craft – gentle, Earthlike. Aside from that she could have been in any of the space facilities she had visited before, from near-Earth orbit to the Moon, the asteroids – and now to here, Jupiter with its huge water-rich moons, where, everyone agreed, the battle to decide the course of the next few human centuries was likely to be fought.

John was much more interesting than such planetary-scale abstractions, more interesting than interplanetary war. People always were. He would have been interesting to Denise even if he hadn’t been part of the first crew to Neptune, outermost of the planets. Even if this man hadn’t once been her husband.

She said, ‘You shaved your head again.’

‘Depilation as usual, facing the long sleep. Losing the eyebrows was worse. And down below—’

‘You put on weight—’

‘As us hibernators always do in advance. Of course, you’re recording all this, images and sound? Hence the obvious questions?’

‘Of course.’

He shrugged. 'I'm sorry there's so little to see. In fact there won't be much for two and a half million years, until Andromeda is off our starboard bow.'

She admitted it. That line thrilled her.

She let him guide her to a refectory, where, yes, mint tea had already been poured into zero-gravity lidded cups. They sat at a table, astronaut style, with their legs wrapped around bars under the seats to hold them steady. He was fifty years old now, two years older than Denise. He was tall, lean, comfortable in his body, trained for the mission. Never handsome, she thought, but striking – especially with that shaven head. Friendly, though, his expression always open.

'You have questions,' he said calmly. 'Personal and otherwise, I should imagine.'

'All on the record,' she replied, equally calmly.

'Fire away.'

'OK, then. What's the true purpose of this mission, John? In your view. You can be honest now; it's not going to get canned, from this point. And why so eager to do this *now*? Is it to demonstrate Earth's technological superiority, before the interplanetary cold war between the Vesta League and the UN gets hot?'

He looked abstracted, considering his answer. '*Cold War*. You're referring to terrestrial conflicts, and the analogy is inexact. When was the – the nuclear war that never quite happened – two centuries back? Actually our current tensions look back to much older models of political control, older sources of power.'

'You're talking about the water.'

'Of course. You know the argument. Water is essential to sustain life, and industry of various kinds. Earth is rich in water. Whereas there is – was – little water in near-Earth space. A few cold traps on the Moon, and in the near-Earth asteroids, scrapings that could have kept terrestrial-scale industry going for a few *days*, no more. The rock rats, seeking some kind of commercial monopoly, scavenge water-rich asteroids – in all, the asteroids hold about a fifth as much as in Earth's oceans. But it's expensive to extract and ship – and Earth has slapped an environmental protection order on most of the water-rich bodies, citing possible biological traces. And away from



that, and with Mars controlled by Earth, there was nowhere for the rock rats to expand. Not inwards, anyhow.'

'And you wouldn't go colonise an asteroid if you weren't interested in expanding further such as before in the aridity.'

'Correct. They had to move out, really. Because Earth was running a water empire, by then. This is what I mean by older forms of polities. The current regime is like some of the early empires on Earth, in the aridity of the Near East of Eurasia. Control somebody's water, which was needed for irrigation back then, and you control their very existence. And thus Earth has been controlling water supplies in space. So, to expand, the rock rats looked to Jupiter, where the big Galilean moons have water to spare—'

'Only for Earth, the UN, to dash out and claim it all for themselves.'

'Correct. A region of space with the water resources to support billions in comfort. Some estimate *trillions*, actually. And you have Jupiter itself, that huge atmosphere to mine. Jupiter is the future of this Solar System—'

'And the water empire has pre-emptively grabbed it all. But not securely.'

He grinned, nodded, his bare head shining in the harsh artificial light. 'The rock rats are firmly entrenched in the asteroids, and are good at this space stuff. They do have an opportunity, for the next decade or two, to fight back against this land grab. But nobody is fighting yet,' he said. 'Thankfully.'

She sipped her mint tea. It was fine, just not what she would have chosen. 'But we are facing off. Just as the Americans and Russians faced each other in the Cold War, then.'

'In the end, *they* pulled back from global conflict. I guess because there were enough wise heads on either side who could see what the consequences might be if they went ahead. An interplanetary war today would be hugely damaging too. Everything in space is so ... fragile. Throw a big rock at a space habitat and it bursts like a soap bubble. Throw a big rock at Earth – and the rock rats could do that with the same technology we developed to push rocks *away* from the Earth – and—'

'Mass extinction,' she said.

'Right. I do believe this is a war the UN has to win. But without fighting.'

She had heard these arguments before, but this was being played up for the recording. ‘The water empire should win? Aren’t they the bad guys, squashing the heroic little pioneer rock rats?’

‘No. Because even if we don’t exterminate ourselves in the process, we *know* that unregulated expansion has to falter, somewhere. Exponential growth just goes on and on, erasing everything, every accessible resource. The planets, the moons, the comets – it could *all* be gone in just a few millennia. And then where are you?’ He shook his head. ‘We can’t just *grow*. We need regulation, like it or not. And the UN’s water empire is in a position to regulate – in our time, anyhow.’

She studied him. ‘And *this*,’ she waved a hand, ‘is your response. A ... cultural response to the new Cold War?’

‘If you like. A demonstration of a higher purpose. Showing that we can do more than fight each other.’

‘Why go so far as Andromeda, though?’

He spread his fingers on the table top between them. Even the backs of his hands had been depilated, she saw, in advance of his coldsleep.

He said, ‘Because it’s as far as we *can* go. Because we will be reporting back from places nobody has visited before. Because we will return, even if only on the longest of timescales, with some truly startling science. Our own Galaxy seen from the outside. A close-up look at Andromeda. You know that in five billion years or so the Milky Way and Andromeda are going to collide? What an event that will be – and it shapes every future you can conceive of. The earlier we can get a good handle on that, the better.’

She had to smile. ‘You are thinking big, aren’t you?’

‘Well, in the nineteen-sixties President Kennedy set his nation just as tough a challenge, in context: to reach the Moon in a decade. Now Secretary-General Bandanaik has set an equivalent goal: to reach out to Andromeda.’

She nodded. ‘The parallels are obvious. Project Apollo then, Project Perseus now ... Why Perseus, by the way?’

‘Well, in myth he was the son of Zeus, king of the Greek gods. A real pre-Hercules hero. And among other stunts he rescued Andromeda from Cetus, the sea monster. Ask me about the relevance of that bit of myth when we get back.’

‘In five million years ...’ She looked him in the eye. ‘We used to be married. I still don’t know you. Whatever the logic of the mission itself, *why you?* Why must you go? You were the first to Neptune. Isn’t that enough?’

‘When you’ve gone to the edge of the Solar System, driving a freighter to Callisto just doesn’t cut it.’

‘You know, and I know, there’s more to it than that.’

He looked away, as if searching for the right words. Or avoiding them. ‘You’re going to ask me about Sarah? On the record?’

‘I have to, John. Because if you don’t talk about it now, nobody will ever understand *you*, and why you are doing this.’

‘Even if it has nothing to do with my determination to see through the mission?’

‘Even if that were true, and most people wouldn’t believe it anyhow.’

He looked down, at fingers nested around his own cup, on the table. ‘You want me to summarise the event? For the sake of your piece. In my own words?’

*The event.* ‘No, John,’ she said softly. ‘Just tell me how you feel.’

And, she was sure, they both knew what she meant.

### 3

Sarah had been their niece, daughter of Denise's sister, her only sibling.

John had no siblings. And he had grown up sterile, thanks to a warfare attack on London when he was a boy. So Sarah was precious to the whole extended family – and had always seemed particularly so to John, otherwise introverted, emotionally undeveloped. Or so even his wife, Denise, found him.

The accident that killed Sarah had been a freak.

They had been holidaying in the national forest that, in the twenty-second century, much of northern England had become. One evening, while the evening meal was being prepared, Sarah, six years old, wandered off, alone.

And the ground had given way under her, as simple as that. She fell deep, and then lay, stunned, in a puddle of groundwater, deep enough to drown her before she woke.

It was a sinkhole, the geologists decided at length. A freak, caused by groundwater slowly dissolving a layer of gypsum in the bedrock, creating a kind of hidden underground cavity – a cavity whose roof eventually gave way.

This was ten years before. It seemed to Denise that John had never recovered. She said so now.

He shrugged. 'Recovery is an inappropriate concept—'

'You speak about yourself in the third person when you talk of such things. No, not even that – you talk of incidents, feelings, as if they were external to you entirely. As if you were describing a faulty engine component.'

He looked surprised at that. ‘Well, I am an engineer, at bottom. Engineer and scientist. I ... it was the sheer randomness of it.’

‘That made it hurt more?’

‘I looked it up. You know this ... for the record. The sinkhole. It turns out to have been a phenomenon of deep time. That gypsum layer was a relic of a drying sea that existed back when the area was at the heart of a supercontinent, called Pangaea. This was maybe a quarter of a *billion* years ago, or more. All that time, you see, and that bit of ground could have given way at any time, any of those ten thousand *trillion* seconds – but it just had to happen in the one second Sarah was walking over it, over that primeval cavern.’ He said this calmly.

She reached out, held his hands, still wrapped around his cup. ‘And that’s why,’ she said. ‘That’s why you’re flying off into the far future. Because Sarah was killed by deep time. Are you sure that’s going to fix you?’

‘Fix me?’ He looked at her. ‘Look, you can write all this down as you like. I just want to remember her. For somebody to remember her. For as long as is technically possible.’

She thought that over. ‘People say this trip is a kind of sublimated suicide—’

‘No. I see it as an extension of human consciousness, of memory, far into the future. Of empathy, even. A new evolutionary step, if you will. As for Sarah – I’ll remember her as long as I live.’

She nodded. ‘We will remember. And then what?’

‘She’ll be remembered as long as the Sun shines.’

‘And then what?’

‘As long as the stars shine.’

‘... And then what?’

He just grinned.

‘And me, John? Will you remember me?’

He withdrew his hands. He sipped his drink.

‘Always,’ he said. ‘You are my Andromeda. Well. I should show you the control room ...’

She returned to Earth, and never saw John Hackett again.

And, after years of routine reports, she heard only one piece of significant news about him.

The event occurred about ten years and five months after the departure of the *Perseus*, with the ship about ten light-years from Earth – and with only eighteen months having elapsed for Hackett, such was the ferocious piling-on of relativistic time dilation. The news, of course, had taken another ten years to limp back to Earth. More than twenty years after he had left.

Hackett had been revived, as he was, briefly, regularly, every six months as the ship settled into its long journey, to supplement automated checks with a human inspection.

He found his six crewmates, all of them, were dead.

A little checking proved to his own satisfaction that the cause was sabotage – presumably, he reported, by political opponents of the mission, either outside the UN or even within it.

Why not kill all seven, though? Some speculated that Hackett himself, a victim of his own complex motivations, might have been the murderer – or maybe, Denise had thought darkly, he had given in to those suicidal impulses she had suspected, after all.

But the ship's internal records, downloaded to Earth, showed traces of deep malware in the operating system, malware demonstrably in place long before the ship's departure, malware with no apparent connection to Hackett, requiring nothing to be precipitated by him in flight. Hackett denied any responsibility; most people believed him, Denise saw. And so did she.

Hackett himself speculated that he had been left alive, alone, on purpose: solely so he could make the confirmatory report of the deaths of the others. In the expectation that he would be unable to complete the mission solo.

But that wasn't going to be the case, he reported.

When he had recovered from the discovery, he sent his crewmates' bodies, carefully preserved in their sleep tanks, with suitable markers and origin information, out in six diverse directions. Each of them a pioneer of a new realm of deep space. He reported on this.

And then concluded, 'Very well. Alone. *Perseus* out.'

Mela

Years 30 to 22



*Year 30*

On the evening before the funeral of their great-aunt Vaer, and thirty years before the end of the world, Mela took her twin sister Ish out to count the Earths.

They walked together from their house on the edge of town, and then to a low hill, set in parkland, a favourite playground for the two of them since they had been small. Well, Mela reflected, as they headed up the grassy slope, favourite at least since big brother Tabor had decided that it was more fun to run with the gangs of boys in the town than to pick on his little sisters when their parents were out of sight. They were safe here now.

It was a steady climb, and the path was easy to pick out in the muddle of light from the cloudless sky. The ruddy background swathe of the stars was a setting for the bright blue-green diamonds of the thousand Earths in their regular array, as if the whole sky was a jewellery box, Mela sometimes thought, like the big box her parents shared, a fascination of studs and clips and pins and brooches that Mela and Ish, twelve years old, were not yet old enough to be allowed to handle.

And, under that sky, Mela was learning to appreciate the way the view around her unfolded as they climbed higher. You could see the roofs of the houses and inns and shops, and the broad, shining vein of the River as it passed through Procyon. Of course the River, the town, this home from which she had yet to venture far even with her parents, was a mere waystation, as she knew now. Just one more place for the River to pass in its twelve-hundred-kilometre journey from the Heartland Mountains at the centre of this Earth, all the way south to the Perimeter, where, it was said,

the flow dissipated in the Tide, a waterfall full of the light of the end of the world.

And, looking downstream of the town, she saw that this evening the River was mirrored by a kind of ribbon of light, following the bank's graceful curves, perhaps twenty metres from the water. That was a caravan, she knew, Immigrants, thousands of them from some other town further south. They were fleeing the Tide, fleeing the advancing Perimeter, steadily plodding upstream.

The Immies were camped for the night, she imagined, and she saw the glistening of their lamps and fires. But they were supposed to have passed through the town by tomorrow night.

Tomorrow being the day of Aunt Vaer's funeral, of course, so Mela and Ish would be down at the cemetery, near the River, when the Immigrants might pass. Mother – and Father too, to some extent – had already issued stern warnings to the girls, Tabor too probably, about keeping a safe distance from the Immigrants, to let the Town Guards do their work if there was any trouble.

As she took in all this, Mela kept an eye on Ish, who, as usual, lagged behind as she climbed. The walk was deceptively steep. They were both panting by the time they reached the summit of the hill.

There were a couple of benches here, and play frames, litter left scattered on the grass by earlier walkers. Ish threw herself down at the base of a wooden play frame, and leaned back against a post. Rather than sit on the cold ground, Mela would have preferred to climb the frame. Even maybe hang upside down, so that it was as if she held up her whole world like a tremendous dish over her head, thrillingly threatened by the prospect of an endless fall into the sea of stars and Earths. But Ish was rarely up for that sort of thing, and certainly not tonight. So Mela sat down beside her, legs crossed, on a patch of bare dirt that wasn't covered in damp, dewy grass.

And Ish was already counting the Earths. 'Fifteen. Sixteen.' She pointed to each one, each glowing dish in the sky.

Mela squinted. 'I can never tell which ones you are pointing at.'

Though they were far outnumbered by the jumble of crimson stars beyond, and though they were regularly spaced across the sky in their cloud, the Earths were a bewildering horde, as if hanging from invisible threads, each a blue dot surrounded by a wider, elusive, silvery glimmer.

The teachers at school had tried to explain the sky, starting with baby-talk when the pupils were small, progressing to more detail as they grew older – even diagrams, numbers.

Mela knew that you had to imagine a greater sphere, with all the Earths, including this, her home world, like flat panels fixed to the inside of that sphere. She had long known that she would always be worse at geometry than at books and geography and stuff about people, but she got the general idea.

So here she was looking up at the interior of that greater, imaginary sphere, lying on one of those panels, looking up at the rest of all the panel-worlds around her own. Some were closer, others – nearer the apex of the sky – farther away, looking smaller.

The Earths were all the same size – the same size as her own – so the nearer they were, the brighter they looked, on average. But even on the nearest of those worlds you couldn't make out features, not with the naked eye, as you would see on a map, if only because they were all but edge-on to her own. But Mela had learned at school that you could see more detail on distant worlds through telescopes.

To add to the spectacle, at any moment some worlds were dimmer than others, some brighter. They all went through their own daily cycles, as the daylight glow crept across their lands and seas, and washed away back to the night again – just as happened on Earth, *their* Earth, Mela's and Ish's. And, she supposed, *her* Earth would just be a blue smear to somebody living on one of these other Earths, lost in the cloud.

And still Ish counted them, every time they came out here like this, seeing how many of the legendary thousand she could pick out.

They were twins but not identical, as her parents always felt necessary to explain to people. Ish had always been smaller physically, quieter, shyer than her sister. Just as Mela had led the way up the hill now, so it was Mela who usually chose what game to play or book to read, Mela who read stories to her sister when she was sickly rather than the other way round, Mela who protected Ish from Tabor's occasional meanness. The doctor said there was nothing wrong with Ish. Father called Ish precious, and Mela noble. Mother, when she looked up from her work – all her buying and selling, buying and selling – called Ish a coward.

Anyhow it was only now, now that they were twelve years old, that Ish seemed to be coming out of her shell and finding her own interests, her own path. Like counting the Earths.

‘Fifty-two,’ she whispered now, her head subtly moving from side to side. ‘Fifty-three. Fifty-four.’

Mela took her hand. ‘I just don’t see how you can even get that far.’

Ish said, ‘I always pick one easy one to start with. Such as that big bright one. See?’

Mela could see; that particular Earth seemed bright enough to cast reflections from the roofs of the town below.

‘And then I just work out from there. Like a – a twirly thing. *You* know.’

‘A spiral?’

‘Oh, you made me lose count. Never mind, I’ll start again. I got to a hundred and twenty-four, once.’ She smiled.

Mela smiled back. ‘Including our Earth. *The* Earth.’

‘I know. Counting our Earth. Nine hundred and ninety-nine up there! One down here! I’ll get to a thousand one day, you’ll see.’

‘No, you won’t, you stupid.’

That was Tabor’s voice.

Glancing around, Mela saw her brother stomping up the hill. He seemed to drag his feet deliberately so as to obscure the footprints the girls had made in the dewy grass. As if erasing their traces. His mood seemed twitchy.

He was looking for something to do.

Mela’s heart sank a little, and she was on her guard.

‘Mother says to come home. You’ve got to get your suits fitted for the funeral.’

Fifteen years old – three years older than the twins – he had much the same dark colouring as the girls, but he was much bigger than either, his voice already deep, like a man’s, Mela thought. But now he put on a whiny tone. ‘Oh, it’s all such a rush.’

Mela snorted. ‘Who’s that supposed to be, Mother or Father?’

He pulled a face. ‘Who’s that supposed to be? Who’s that supposed to be? You think you’re smart, don’t you? You’re as stupid as *she* is.’

Ish scowled, her expression clear in the muddled Earthlight. ‘I’m not stupid, you—’

‘Oh, leave her alone,’ Mela said.

‘Leave her alone,’ Tabor parroted. ‘To do what? Count to ten, forget what comes next, and start all over?’

Ish scowled and turned away.

Mela just felt ... tired. Tabor was always like this, out of sight of their parents anyhow, and sometimes even when they were around – particularly Mother, who was a lot less likely to pay attention and to dish out punishment. Tabor didn’t usually harm you that badly. But he was relentless. Every day was the same.

She said, ‘I like hearing her count. And what difference does it make to you?’

He grinned. ‘I just like hearing you two be stupid, that’s all. Counting the Earths is stupid.’

Ish protested, ‘No, it’s not—’

‘It is. Because the Earths aren’t important. Mother says so. *She* says the stars are much more important, and they *think* at each other, and if you could only see their thoughts you’d have something worth counting.’

Mela frowned, uneasy.

Tabor, typically, was picking at a scab, another flaw in their family. And he was doing it just to be cruel.

Mother and Father followed different faiths, she the Starrist, he the Perseid. The two great creeds sometimes worked together, and sometimes fought. ‘They are *complementary*,’ her father had told her, spelling the word for her. ‘They talk about the same ... universe. The same mankind, the same *us*, and our place in that universe. The same stars, the same Earths, the same history. They just think different bits are important.’

But, Mela had learned, those differences of doctrine had caused wars in the past, back in history, and had sometimes caused wars in their own household. Such as over the funeral arrangements for Aunt Vaer, as they called her, actually Mother’s own aunt. What kind of service should it be – Starrist austerity or Perseid humanity? And Tabor was old enough to see the barely concealed differences between their parents as a mine for spite, because those differences frightened his sisters.

Now he said, ‘Counting Earths is stupid anyway.’

Ish, for now, seemed calm enough. ‘No, it’s not. You can’t count the stars, you can’t *see* a lot of the stars, thinking or not. They’re just red dots, and some are too far off to see without a telescope. But you can see the Earths. All of them, if you wait, while the sky clears. I’m going to count them, even if it takes me ... *weeks*.’

Tabor snorted laughter. ‘No, you won’t, you baby.’ Standing there, he pursed his lips. As if deciding what to do. ‘Even if you did it wouldn’t mean anything. Shall I tell you why? This is something they tell the big kids at school, bigger than you babies—’

‘Stop it, Tabor,’ Mela said quickly. ‘Please.’ *We mustn’t be ready for this. Whatever he’s about to tell us. We’re too little.* It was like when he had told them about sex, in graphic detail, a few years back. *But he’s going to tell us anyway.* ‘Please—’

‘Counting the Earths is meaningless. Because *Earths die*. Like people do.’

Ish seemed stunned. ‘Like Auntie Vaer?’

‘Like Aunt Vaer, that miserable old woman. Like *you* will someday.’

Ish visibly flinched at that.

‘Earths die,’ Tabor said flatly. ‘Whole worlds full of people and rivers and animals and such, just going – *poom!* – in the dark. People have seen it. There hasn’t been one you can see just with your eyes, not while we’ve been alive. The astr– astro– the people who look at Earths and stars—’

‘Astronomers,’ Mela said, her own voice faint.

‘Yeah, them. *They* have seen Earths exploding. Or collapsing, whatever. In the past anyway. before. Worlds turning to clouds of—’ His imagination evidently failed him. ‘Junk. Rubbish. All just floating around in space, people and animals too. It doesn’t happen very often. There haven’t been any while we’ve been alive. And there’s none you can see just by looking, they’re too far away. But there have been some. They have *records*.’

Ish had been listening in horror. Now she seemed to crumple. Sitting by the climbing frame, she folded into a ball, tucking her head between her knees, wrapping her arms around her head, covering her ears, her eyes. ‘Earths die? Will our Earth die?’

Tabor grinned and walked up to her.

Appalled, deeply upset herself, Mela moved forward, blocking his way. But now he was winding up for the killer blow. He pushed her aside and

stood over Ish.

‘Of course our Earth will die. *That’s what the Tide is.* Eating away at the Perimeter. A dying world. Our world, dying world. Bit by bit by bit—’

Ish looked up at her sister. ‘Is it true, Mela? Will the Tide come here?’

‘No,’ Mela said, scrambling for some comforting fragment – though she had no real idea of the truth herself. The Perimeter, relentlessly driving its displaced people forward, was real enough, but far away, off in the future, for her. It always had been. ‘No. Even if it does we can – move away. Go north.’

‘And be like Immigrants?’

‘Yes. No. Not like them. Mother and Father are important. They’ll take us, we’ll walk all the way to Sirius City and the Heartlands and then we’ll be safe.’

Tabor leaned over and leered. ‘They wouldn’t let the likes of *you* in. Not at Sirius, where the rich people live. Where the Empress lives. *I’m* going there some day, to fight in the army. They won’t want a weakling like you —’

‘Leave her alone, Tabor.’

Their reactions just seemed to goad him on. He chanted at Ish, ‘One after the other, they’ll die, die, die – popping in the sky. Die, die, die – popping in the sky—’

*Enough.* Mela bunched a fist, held her arm outstretched, and whirled around the way Father had once shown her to throw a discus.

Her brother got her fist and forearm right across the side of his head.

Tabor staggered, shocked, almost fell.

Mela stumbled back.

Tabor lifted a hand to his cheek. It came away red. He straightened and marched up to Mela, fists clenched, the side of his face a bloody mask. ‘I should kill you for that. I should kill you both. I’ll tell Mother.’

Mela ran to Ish, who was still huddled over, and wrapped her own body around her sister’s. Waited for the blows to fall. Wondering, with a stupid urge to laugh, if he would tell on them to Mother before or after he killed them. *Even if he does kill us,* she thought bleakly, *Mother will say it’s our fault for being cowards.*

One breath, two.

But the blows had not fallen.

She felt a drop of blood, warm, fall on her face.

Cautiously she lifted her head. Ish stayed tucked over.

Tabor was standing over them still, silhouetted by the light of the Thousand Earths, fist clenched. Grinning, his teeth white in a mask of blood.

When he spoke, his voice was calm. 'I'll tell you what else they told us. At school.'

Again a deep dread took root in Mela's heart. 'No, Tabor.'

'Something you aren't supposed to know until you're fourteen.'

'No, please—'

'The Earths are dying. Do you remember I told you that, stupid-stupid? And our Earth is just another Earth in the Cloud. Isn't it? All the Earths in the Cloud will die, some day. And so will ours.'

'Everybody must die. Auntie Vaer—'

'Aunt Vaer was *old*. And this Earth is old too,' Tabor said slyly. 'And, guess what? The teacher said they know *how* old. I mean, they can tell *when* it's going to die. When it will explode, right out from under your stupid feet.'

Mela felt Ish tense further in her arms, tightening into a ball of stress and terror.

'And you want to know *when* it's going to die? They know, the astronomers. The teachers know. I bet Mother and Father know.'

'Tabor, please—'

'*Thirty years*. Ha! That's all. Just *thirty more years* and the whole world will pop like a spit bubble, and you'll be left spinning in space like a landed fish out of the River, gasping for air. You think about that. You try and get to sleep tonight! It's all true, the teachers told us. You'll see. *You'll die when you're forty-two*. Both of you. Think about that.' He wiped his face, and looked at his bloodied hand. 'I'm going straight home, like this, and I'll tell Mother what you did.'

'You're lying,' Ish said, weeping now.

But Mela knew he wasn't. Suddenly she saw it. *Of course it's true. Why else call this Year Thirty, and the last Year Thirty-One, and the one before that ... Why did I never wonder what those numbers mean? Of course he's telling the truth.*



Now Ish pushed her way out of Mela's embrace. Glaring up at Tabor, she sounded somehow much older. 'You're frightening us. But don't you see, you – you *stupid* – if we die you will too.'

He grinned. 'Yeah. But I'm older than you. I'll be able to do more stuff. Have sex and stuff. And I will have lived longer than you ever will, *three years longer*. Ha! Losers.' And he walked away.

When he was gone, they rested a minute. Then Mela got to her feet, helped Ish up. Her face was as tear-stained as Tabor's was covered in blood, Mela saw now. They would all have to clean up before they went home.

The girls set off down the hill back towards home.

On the way they disturbed a flock of birds, small creatures, grey and brown so they were hard to see. The birds scattered before their footsteps, scurrying over the ground, one trailing behind with a broken, stubby wing.

Back home, there wasn't the storm of recriminations that Mela might have expected, given the state they were all in.

There were tuts and frowns from Mother, but, bent over a desk strewn with papers, she mostly ignored the three of them.

Father took care of them, if brusquely by his standards. He pulled them all over to the light of a clearwood window, and inspected the impressive bruise developing over Tabor's cheekbone. Mela looked on, suffused with a delicious mixture of shame and a sense of accomplishment. Mela herself was grubby, bloodied but unharmed.

Tabor mumbled some excuse about getting into a fight with Immigrant kids, which any canny parent would surely see through, Mela knew. Mela had long ago learned that Immigrants and their kids were first in line for blame for most of what went wrong in Procyon, as they passed through the town – and, she now thought, dismally, probably in all the towns along the River, on their way from wherever they had come from to wherever they were going, as they followed the River upstream, fleeing before the advancing Perimeter.

Well, Mela kept her mouth shut, as did Tabor, and if her father was suspicious he didn't show it.

Or he and Mother were just too busy – and that *was* because of the Immigrants, Mela knew. Because both of them had jobs to do with the unending flow of people.

Mela could see that Mother was distracted by what looked like last-minute arrangements for the next day's family funeral – even though she kept taking frequent stolen peeks at a heap of other work on her desk. Ledgers with labels like *Investment Portfolio Projects: Years Minus Twenty-Five to Minus Twenty*. Other big fat books containing, Mela had learned,

closely hand-written entries of money totals, with plus and minus signs and fractional gains and losses.

Mela knew this was something to do with the Immigrants, but she had no clear idea what. All she understood was that there was some kind of link between the Immigrant flows now and in the future, and her own family's income, its wealth. Mela was pretty sure she was expected to follow her mother's footsteps in what she knew was the money-earning family business – given that the eldest, Tabor, no intellectual, was evidently unsuited to the job, and Ish, though bright in her way, had none of the concentration and organisation such a job would require.

Not that Mela liked the idea, not if it made her as ill-tempered and unhappy as it seemed to make her mother. Even getting in the way of the work was enough to set her off. 'Don't pull at your face like that,' Mother would growl. 'Do you find all this boring? *This* is how I earn the money to pay for you three. And with half of it taken off in taxes and duties and humanitarian funds. You three *and* your father ...'

Meanwhile Father's work was about the Immigrant columns too. In another room of the house he wielded more ledgers, tables with labels like *Age Profile, Gender Percentage, Skills Breakdown, Liquid Assets* – which Mela knew meant money, cash. The job of a Magistrate was basically to help the town handle the Immigrant flow as a whole. That meant coordinating Guard patrols to keep the town safe as the Immigrants passed through – maybe providing the Immigrants with support, food or medicine, maybe not. And, Mela had recently learned, Father had to decide, or help decide at least, which of the Immigrants could be allowed to stay permanently in Procyon, if they had money, or useful skills like doctors or teachers – and which would eventually have to pass on upstream. Ever upstream, heading north into the Hinterland and so deeper into the inner territories of the Empire, where, her father said gloomily, they were even less likely to find a refuge. And, to Mela's confusion, he even had a role in deciding which Immies belonged to a third class of person, those who would not be allowed to pass through the town at all, and Father wouldn't say what would become of *them*.

All of which was controlled by the precious Permits it was his to grant, or not, to the individuals washing up through the landscape. Permits controlling life and death, Mela was growing up to understand.

And she was beginning to understand, too, that he cared about every single case that crossed his desk, pass or deny.

So both their parents were distracted by work tonight.

‘We’re lucky they’re so busy,’ Mela said to Ish as they cleaned themselves up in the bathroom. ‘It was pretty bad tonight. I mean it was Tabor’s fault, but we all get the blame for fighting. Any other day we’d be in bed without supper, or worse—’

‘Maybe *we’re* lucky.’

Ish looked at her distantly – as if, Mela thought suddenly, she was still counting Earths in her head.

‘But it’s not so lucky for Auntie Vaer, is it? Or those poor Immigrants.’

That startled Mela. *Poor Immigrants*. Nobody called them that. To most Procyon folk she knew, Immigrants were just – Immigrants. It was as if they weren’t people at all, she thought. More as if they were a kind of sewage; a backwash coming up the River, to be dealt with. Even those allowed to stay in the town – even if they stayed for years – even they were never treated like regular people, like people who had been *born* here.

She looked at Ish differently now. Maybe Ish, of the two of them, was more like their father, if she thought that way about the Immigrants. If she pitied them, understood how they might feel. Whereas Mela herself – what was she? More like her mother? Stern and cold and abrupt, and seeing people like stuff you would buy or sell, like shoes or firewood – and yet, she knew, providing for her family? She hoped not. Maybe she could have the good bits of Mother without the unhappy, unkind bits.

And if so, she thought, if Ish was like Father, and Mela was like Mother, what had been left over to make Tabor? She laughed around her toothbrush.

Ish looked at her oddly. ‘We ought to go to bed.’

‘Yes, Father.’

Mela had trouble sleeping that night. Maybe it was the physical beating-up. Or the anticipation of what was going to be a strange day, one way or another, the day of a funeral. Or the tension in the house, emanating from her busy-busy parents.

Or, she thought wryly, maybe it was because her thug of a brother had told her the world was going to end in thirty years. Out of *spite*.

She was twelve years old. She couldn't imagine being an adult, like Father and Mother. When she tried, she seemed to see herself as a sort of stretched kid, pretending to be a fake adult in old-person clothes. With a dull, boring everyday job? With *children*? Thirty years might as well be forever, she thought, in her heart. For now, at least.

And besides, as her father often said of some minor impending disaster, 'Something might turn up.'

What, though?

She was old enough to know that she didn't understand what it would be like to be grown up. She knew what anxiety was, however.

On the day of the funeral, awake before dawn, she pulled on a coat and made her way to her room's small window. Small as it was, if you stood on a chair you could get a good view of the sky – the Thousand Earths – and the River. And now she watched as the day began to break. In the sky to the east, beyond a faint pink layer of mist, the rich blue of the night sky, adorned with the Thousand Earths and the scattered red stars, began to give way to a deeper crimson that swept up from the horizon, brightening steadily, eventually to gather as a pale blue at the crown of the sky – if the clouds let you see it, as they did today. There was no single source of light in the sky, just a smooth brightening from night to day. As if, she thought,

the whole world were a room with walls and ceiling that could fade to transparency, like smartwood.

Once, Tabor had told her another not-for-little-kids fact about the Earth. He said the philosophers believed that Earth, *this* Earth, her Earth, like all the Earths, was a machine. Not something natural. Something built. Somehow, as she watched that dawn, Mela thought that was quite likely to be true. And she had no idea how she felt about that. Not good, if the machine was going to fall apart in thirty years.

She heard footsteps, yawns, a sharp command from Mother to Tabor to wake up. The day had begun.

The funeral was to be held early in the morning, apparently a last request from Great-Aunt Vaer.

‘It was her favourite time of day,’ Mother had said, sounding irritated, mystified. ‘When the world is fresh. Who knew?’

Father had raised his eyebrows. ‘You might have known, if you ever listened.’

Mother shrugged. ‘Makes no difference to her now.’

So the family had a quick breakfast – smartcrops gathered from the garden and heated on a hotplate, with mugs of tea. It was a quiet affair, the adults distracted, the children subdued.

Mela found herself staring at the cooker’s heat stalk. This was a wrist-sized metal rod that plunged into the ground to tap the heat down there, ultimately connected to the town’s deepshaft, a tunnel down to the Substrate itself, so it was said.

The deepshaft where Aunt Vaer would be placed in a few hours.

They quickly got through the meal, and then changed into their funeral clothes. Tabor put on his Guard cadet uniform for the day, and strutted before the mirror.

The girls’ outfits were formal affairs of purple fabric laced with starbursts. Mela knew that these designs reflected their mother’s Living Star faith rather than her father’s Perseid upbringing. Although Aunt Vaer had been a Perseid too – her mother’s was a mixed family – so Perseid green might have been more appropriate. Mela had always thought that her own leanings were towards the human warmth of the Perseid teaching rather than the cosmic austerity of the Starrists – what little they had been taught

about both faiths at school – but she admitted she had always preferred the Starrists’ designs and colour schemes, compared to the Perseids’ bland green, and she frankly loved the sweeping starburst gown her mother wore today.

When they were ready, it was only a short walk from their house, down past the small estates of other families to the town’s small Perseid funeral plot – in turn only a short walk from the river bank. It was a select part of town, close to the centre, with the town hall nearby, and the public printer bank. The bank was a squat building that, Mela knew, stood on top of another kind of root in the ground. Another close link to the main deepshaft that led down to the Substrate, a kilometre below, the foundation of the world and its source of energy. A few people were already lining up at the printers, this morning, here to ask the machines within for pens or pots or pans – specialist stuff you couldn’t find in the smart forests in the countryside outside the town walls, where small, simple tools and gadgets, even furniture components, grew wild.

Mela hadn’t travelled much, but Father had told her that all towns were like this, based on the same foundations, with the same facilities. There would be a cluster of deepshafts feeding heat stalks and printers and such, moulded into the rocky ground. These things weren’t human-built. The world had been *made* that way (or had made itself, depending on your ideology). And you built your town around those facilities. So, here were the printer users, next to the mourners gathering at the deepshaft itself.

The people in the deepshaft lines kept quiet as the funeral unfolded, their gaze respectfully averted.

And now Mela could see the mourners already gathered by a trestle which evidently bore Vaer’s fragile body, wrapped in its own Perseid-green blanket. Only a few people were here yet, and Mela only recognised a handful of them. Distant relatives, she supposed, and Vaer’s old-person friends. She hoped the ceremony would be quick, and the gathering later even quicker, even though she knew that was a selfish thought.

But she was distracted by a wash of motion beyond, behind the plot, between the ceremony and the river bank.

As they walked closer to the funeral pit Mela saw that it was the Immigrant column, or maybe an offshoot of it, making its steady way upstream. Plodding people, presumably having walked all the way north

from the Perimeter fence that had finally pushed up from the south into their own lands, their homes. They were dusty, dark, shapeless, in layers of baggy clothing. Without identities. You could tell which were children only by their size, if they were walking too.

Mother snarled, 'Trust a pack of *them* to spoil the atmosphere, today of all days.'

Tabor just laughed. 'Ha! Look at those Immies limping along.'

Father turned on him. 'You do *not* use language like that. Not today. Not ever.'

Tabor recoiled, but was defiant. 'Why not? *She* does.' He pointed at his mother.

'Not *ever*. Tell me you hear me.'

'Yes, Father.'

Father turned away.

Mother sniffed. 'Well, we're already late. Let's get it over with.'

She walked off, leading the way to the burial plot. Her mouth was set, Mela saw, an expression she often used when facing a situation she didn't like. Determination and distaste.

And as the family followed, Mela thought she heard the bellow of some huge beast, powerful, mournful itself, ring out across the town.

Ish, walking beside her, took Mela's hand. She whispered, 'Did you *hear* that? Was it an aurochs? I heard these Immigrants use aurochs to pull stuff sometimes.'

'I don't know,' Mela said. 'But I hope so. Make the day more fun.' She grinned, and they both stifled laughter.

They reached the graveside, and the slow, simple ceremony began.

Two bearers worked pulleys, and the body, on its board, wrapped in its Perseid green, began its smooth descent into the ground – and, shortly, Mela knew, it would reach the deepshaft over which this pit in the soil had been dug. Like uncountable others before, Vaer's body would begin its last, strange journey through the lower layers of this world – down, down, following a steep, smooth slope through what was believed to be a kilometre-thick layer of earth and water and rock – down until it reached the Substrate layer which supported the whole Earth.



‘So Vaer is cradled,’ the preacher said now, ‘as once her mother cradled her as an infant, and as the love of Perseus cradles all humanity – *and remembers*, as Perseus remembers his Andromeda. For whoever lives in the Substrate lives on in him ...’

He bent to take a handful of earth from the side of the shaft. ‘Cradled as our Earth cradles this ancient soil, which is enriched by the blood and bone of humans and their companion beasts and living things, and which *sparkles* with the fragments of machines and treasures long destroyed ...’

Mela, not uncharacteristically, was more interested in the people around her than in the preacher’s words. Did any of the green-clad Perseids here *believe* all this? That when you died, so long as you were properly deposited into the ground – down a deepshaft, the appropriate words spoken over you, you would somehow live on? Maybe even forever? And yet, when she thought about it, the words did describe her Earth world as it seemed to be, as a huge, cradling machine. Like the other Earths in the sky. And an ancient cradle indeed, if the preacher’s words were true.

Now the preacher held the handful of dirt to the bland sky. And it actually did sparkle, Mela saw now, vaguely thrilled. Maybe there really were fragments of machines and treasures long destroyed ...

Ish, frowning, tugged her sleeve. ‘Listen.’

Mela whispered back, ‘Hush—’

‘You hush. *Listen.*’ She tugged again, and they stepped away from the knot of people around the burial plot. ‘Can you hear that?’

‘What? Not the aurochs again.’

‘Not *that*. Somebody crying.’

And now Mela heard it, a loud crying – halfway to a scream, she thought now. A child’s scream.

‘I think it’s coming from the River,’ Ish said. ‘One of the Immies? And —’

And now another noise, a good bit louder. That aurochs’ call again, but much louder, much closer.

As the body descended, as the preacher droned on, Mela saw the adults were getting distracted now, much as they tried not to show it. It wasn’t every day you had aurochs pass through the town.

But their distraction gave the sisters a chance.

Mela grabbed Ish’s hand, pulled her away. ‘Come on.’

Ish ran with her gladly enough. ‘Are we going to see the aurochs?’  
‘No. We’re going to find out who’s screaming ...’

At the river bank, they faced an apparently endless line of people, most of them grimy, most on foot – adults, children, the old, even some infants – anybody who could walk was walking, with a tired, shuffling, *dusty* gait, Mela thought. Many carried packs on their backs. There were vehicles studding the line, just crude wooden wagons, some of them hauled by big grunting horses – even they were a thrill for Mela and Ish to see – but most pulled by humans, men and women and even older children hauling at traces.

The scene was cluttered further by townsfolk come to see these transient visitors pass through. Just to see them – or mock them, Mela saw – or, in rarer instances, help them with small offerings of food or flasks of clean water. But the lines of Town Guards that accompanied the column generally pushed away any such offerings, or took them for themselves.

Mela saw all this in an instant.

And she saw that one wagon was hauled by an aurochs.

A mountain of heavy flesh, it towered over the tallest of the people, even the greatest of the horses: its dark brown hair thick and shaggy, two grand horns curling in the air, a massive tether over its head with dangling ropes attached, ropes hauled by three, four handlers. This was the first aurochs Mela had ever seen in the flesh; they weren’t usually brought into the town. It was overwhelming, hugely physical – it *stank*, she thought, joyfully.

But now the big beast roared again and shook its harness. And, suddenly, it reared on hind legs, huge and heavy and scared and evidently almost out of the control of the handlers who surrounded it with their ropes and whips. It reared higher still, bellowing—

‘*There.*’ Ish pointed, at what looked like a heap of rags at the feet of the aurochs.

A heap that was moving, Mela saw now, slowly, evidently painfully.

‘It’s a girl,’ Ish said. ‘She’s hurt. Nobody’s watching her. Is she the one who cried out? Maybe she fell – she screamed ...’

Mela barely heard any of this. For, she saw, the rearing aurochs was about to come crashing back down to the ground with that heavy body, those wide, hard feet, crashing down *right on top of the injured girl*. And

nobody was reacting, the Guards, the Immigrants, even the townsfolk apparently frozen. Nobody had noticed.

This was right in front of Mela.

Mela didn't think about it. She just ran forward, pushing through the line of Guards, pushed her way into the column.

She scooped up the injured girl. She was light, lighter than Ish. She might have been six, seven years old, and she screamed with the pain of her dangling leg.

But the aurochs was like a toppling building above her. Mela was actually in its shadow. It bent and waved its tree-trunk forelegs.

Holding the girl, Mela threw herself sideways. She landed on top of the girl, who screamed again.

And Mela heard the bellow of the aurochs as it dropped down onto its forelegs, an impact that shook the very ground. Mela, bewildered, imagined the ripples reaching down through the base rock, to the Substrate a kilometre below.

An impact that had missed her, and the girl. She had startled the aurochs away, just enough to move the girl to safety. She just lay there, breathing hard, bewildered, unable to move.

Now Immigrants swarmed around her, gently pulling her back, even more gently crowding around the injured girl. She screamed again, but a man clamped his hand over her face, to stop her alarming the aurochs further, Mela realised.

Then the man spoke to Mela, in an accent too thick for her to follow.

Mela was distracted as Ish ran up to her, crying, smiling. She took a deep breath. Ish and Mela shared a look, and then embraced, laughing.

Ish helped her up.

Mela said, 'We'd better get back to Aunt Vaer's funeral. Do you think they missed us?'

But as they prepared to move away the girl shook off the hand over her mouth. She called, her accent strange and heavy, 'What is your name? You! Who saved me! What is your name? My name is Peri! Peri!'

'I am Mela!'

'I will remember you, Mela! One day I will save you in return! I am Peri! ...' And then she was gone, gone in the crowd, and Mela and Ish had

to scramble to get out of the way as the procession of Immigrants continued.

Father came running up, clumsily. His face was twisted with what seemed to Mela an odd mixture of anger, fear – and a kind of joyous pride. He grabbed Mela, enfolded her in his arms, and hugged her as he hadn't since she was a child.

'Oh, Mela, Mela. How could you do that? To risk your life so. And yet how could you not ...?'

She let herself melt into the hug. But over his shoulder she saw Tabor, with a look of contempt on his face. And he mouthed at her. *Makes no difference. Thirty years. Thirty years ...*

She pulled back from her father, suddenly feeling the awesome implications of that.

Tenn looked at her, puzzled, still holding her. 'Are you all right? Are you injured—'

'No, no. Nothing like that. Father ... tell me the truth. Will the world end? Will it end in thirty years?'

His expression crumbled. She read regret, dismay – fear.

'Ah, ah. I hoped to spare you a little longer. Why do you ask now? ... Ah, but I left it too long. You are growing indeed ... Who told you?'

She shook her head.

He held her shoulders. 'That is our fate, I'm afraid.'

'Will you be there, Father? With us, at the end.'

He looked as if he was on the verge of tears. 'Where else would I be? We must help the others, you and I. Help your mother and Ish. We are the strong ones. But, yes, I promise. I will be there, with you. Come now ...'

*Year 25*

One evening their parents made the two of them stay at the dining table after the evening meal. This was five years after the funeral of Aunt Vaer, and as the twins' seventeenth birthday approached.

The girls sat quietly. The light outside the open windows was fading, the whole sky dimming down – a handful of Earths visible, bright blue spots. Evidently their parents had something to say.

Mela idly picked at the table's wide, smooth top. The table was new, the top a seamless piece of smartwood, trained and grown to order in a specialist forest workshop deeper in the Hinterland, to the north of Procyon, and so closer to the heart of the Empire. Remarkably expensive, according to Father.

Tabor wasn't here. He rarely ate with the family now.

'Your father and I have been arguing,' said Mother at last, abruptly.

Father laughed. 'I don't agree.'

Ish said, 'But that means you are arguing now.'

'I won't argue with *that*—'

Mother snorted. 'Word games. You shouldn't encourage her, Tenn.'

Mela shook her head. 'Why not? At school they have us debate things. They say it makes us think.'

Mother scowled. 'Hmm. It teaches you to talk like a clever Immie with a grudge.'

Mela found she recoiled at that word. *Immie*. A word once banned by her father. A word Tabor, their brother, used routinely now, especially since, aged twenty, he had been recruited to the Fence Watch, a division of the Town Guards.

She said, ‘They aren’t “Immies”. They’re Immigrants. And they aren’t even that by choice—’

‘And talk like that and *you’ll* end up like your father,’ Mother said. ‘A Magistrate. Or more likely a Magistrate’s clerk. Agonising over the fate of losers running from the Perimeter.’

Mela said, coolly, ‘Rather than making money out of them.’

That was of course a direct dig back at her mother, who pursed her lips.

But before she could speak, Father put in, ‘Leave it, Salja. Let’s call a truce. This isn’t going very well, is it? Look. We didn’t get as far as telling you what we were *not* arguing about—’

‘Tell us, then,’ Ish said impatiently.

‘Your birthday,’ Father said. ‘The two of you. Your seventeenth. Look, call me sentimental. You’re growing up fine and smart and strong, and we are very proud of you.’

Mother raised her eyebrows, but didn’t butt in.

‘*But,*’ said Father, ‘you *are* growing up. Last year, the year before, it was all about family, the gifts we bought you, the party we threw. Next year you’ll be gone, so will your friends, following your own careers, your lives, and there’s nothing wrong with that. So this year, we thought we should do something special. A one-off, something you will remember. And also – well, once you’ve been out there, you will – understand – a lot more. And it makes further sense since just now we both have reasons to go out there anyhow—’

‘Out where?’ the twins said, almost simultaneously. Ish asked, ‘Where are we going?’

‘*To the Perimeter,*’ Father said. ‘To see the Tide.’

That news filled Mela with a kind of startled joy – and a splinter of fear. The Tide, the end of all things, beyond the edge of the world ... ‘Really? I mean – yes! Let’s go.’ She saw that Ish was grinning too.

Mother raised her eyebrows. ‘*How* old are you two again, seventeen or seven? Well, as your father says it makes a certain sense. We both have business out there ...’

And Mela thought it wasn’t a surprise that this treat turned out to be just a distorted version of a business trip, for Mother at least. Which was probably how Father had got her to agree in the first place.

Father ignored that, however. With a flourish, he pulled a map scroll from his jacket pocket, rolled it out over the wooden table. It was a simple linear depiction of South River, the formal name of 'their' river, leading all the way from home at the top all the way to the Perimeter, the Tide: a ribbon across the landscape with its tributaries and ponds and flood plains, connecting more communities. All of these towns, to the south of here, were in the Uncivilised Lands, so-called, the region beyond the Hinterland where the Sirian Empire's sway was formally acknowledged. Procyon itself was close to the Hinterland's southern boundary.

But the map was old, Mela saw, with changing positions of the Perimeter marked by hand. The map had evidently been drawn up when the world had been bigger, the Perimeter further out, and a whole series of southern towns had been crossed out one by one as the Perimeter had crawled northward, steadily, relentlessly. Mela wistfully wondered what had become of the people of those lost cities – she wondered how many people even remembered the cities' names.

Father ran his finger down the line of South River, picking out townships close to it: three of them in all. 'We'll stop here. We'll take our time. There will be lots to see. The towns, the people – the animals too, there's more room for them down there ...'

Mela asked, 'What animals?'

'Wild aurochs? I'm told there are still a few herds ...'

Mela and Ish looked at each other gleefully.

But Father kept talking. 'There's not the room there used to be, of course. The Tide is only about a hundred kilometres south of us now ...'

He said that casually, and Mela realised that, though she had grown up with such numbers, she had never really taken them in. *Only about a hundred kilometres*. She vaguely wondered how many times she would have to walk around her own town's perimeter to cover a hundred kilometres, the distance to the end of the world. Less than twenty?

This journey was a treat for grown-ups, she realised – or a treat designed to make you grow up, perhaps. If it was a 'treat' at all.

Father said now, 'We're thinking a day or two at each town, we're in no hurry—'

'And I've got business to do at each one,' Mother said, breaking in. 'Which will take as long as it takes.'

The twins just shrugged that off.

‘And,’ Father said more circumspectly, ‘yes, I’ve a little work to do on the way also. Signing off a student Magistrate’s certification at Rigel, for instance. And there’ll be a planning meeting at Arcturus, the next town to be Tide-evacuated. Shouldn’t take long. Early opportunity to discuss procedures and handovers. The sooner the better with such matters ... Ah! Here I am discussing my own dull itinerary.’

‘Girls, the main thing I want you to see when we go out there is the Tide itself. The reality of it.’ He shook his head. ‘It amazes me how people walk around and live their lives as if the Tide and its advance didn’t even exist. Or as if the Perimeter was still as far away as when the Thousand Earths were first built by the Perseid and his companions.’

‘According to legend,’ Mother said, faintly disapproving.

Mother the Starrist, Mela knew. Mother whose creed officially denied that the Perseid, or Perseus, had ever existed, and held that the world, or worlds, had been created by the Living Stars.

Father snorted. ‘Legend, history – it’s the only remotely specific account we have of our origins.’

Ish seemed troubled. ‘Only a hundred kilometres ...’ She shivered, Mela thought, as if the numbers had only now fitted into her understanding too.

Father covered Ish’s hand with his. ‘This is growing up, love. I know how it feels when you start to understand, really understand. We’re dealing with it. We’ll make sure you’re always safe, your mother and I. We’re prepared. That’s the thing to hang on to, you see. Not the threat, but how we are going to cope with it. You mustn’t be anxious.’

Mela thought it was too late for that. Sometimes, when she tried to think like a grown-up, she wondered if they were all insane – everybody in the world, not just her family – carrying on with business and life and even education, as if the twenty-five-year terminus of everything wasn’t real – as if it would turn out to be some kind of mistake, that the storm clouds would clear.

But Ish was pouting now. ‘Some treat this will be with you two working all the way.’

Mela stared at her. Just like that, Ish had put the imminent end of the world out of her head.

Father smiled. ‘Don’t worry, we’ll have some fun on the way.’



Ish looked doubtful. ‘What kind of fun?’

Mela smiled. ‘He told us. *Aurochs*.’

And Ish’s smile in return was like a bright midday sky. ‘What else?’

They were twins, but suddenly Ish seemed so much younger than Mela was. *I’m going to have to protect her*, Mela realised. *All our lives*.

Later, Mela went out to find Tabor – to talk to her brother about the trip. It seemed the right thing to do.

She asked at the Fence Watch training camp, and was sent to the town fence itself. She found Tabor walking the parapet wall between two watch towers on the southern perimeter, shadowing a more seasoned officer. His only weapon for now was a sort of wooden club, junior as he was. But he wore a Town Guard’s red-over-blue uniform, and he glared south, beyond the town boundary, as if daring whatever Immie bands lay beyond to approach.

When Mela called up to him, he walked over reluctantly. Mela was aware of his superior officer leering as he looked down at her.

Tabor knelt on the walkway and hissed down. ‘What do you want? You’re showing me up.’

She glared back. ‘I just wanted to make sure you are all right about the trip.’

‘Down the River with Mummy and Daddy? Who cares about that?’

‘It’s all right with me and Ish if you want to come. I know it’s our birthday—’

‘Why would I want to waste days seeing a bunch of dung-heap towns?’ He grinned and patted his palm with his club. ‘I can just wait here until the Immies and their squalling brats and toothless grandmothers come to *me*.’

‘I just wanted—’

‘Clear off.’ He straightened, turned away from her, and went back to his post.

Mela retreated.

That officer watched her until she was out of sight. Even then she heard him make some remark to Tabor, and they both laughed.

Tabor wasn't in place on the fence when, on their birthday a couple of days later, Mela, Ish and their parents walked out of their home, and to a gate on the town's southern side.

Both parents had to show papers and Permits and proofs of identity. Mother muttered vaguely, 'Next year, when you are eighteen, you two will need your own Permits to get out – and, more importantly, to get back in. Your father will sort it out.'

Ish snorted. 'Yes, and I bet our big brother will do his best to keep us out in the wilderness if he gets the chance.'

'Oh, grow up.' Mother turned away.

And then the gate opened, hauled back by a couple of Guards – neither of them Tabor – and, with Mela dragging a small trolley with their luggage, they walked out through the fence.

Once out, they headed roughly east at first, making for the river bank.

Mela tried to remember when she had last come out here, out of any of the town gates, the four of them studded around the roughly circular perimeter fence. She did remember that things had been different when she was small. Then the gates were routinely left open during the day, with a token Guard or two standing watch, and sometimes not even that. Even visitors from the country or other towns had been allowed to wander through, though she now suspected they had always been required to carry the right papers and Permits. Things had changed since then, as the Perimeter – the limit of the world itself – had moved northward by hundreds of kilometres, driving hordes of people before it.

But, as she often found herself repeating in the privacy of her own mind, the world might be ending, but not today. Not today. And with

determination, one hand hauling the luggage trolley, the other clasping Ish's hand tight, she marched forward into the open land beyond the fence.

The world seemed to simplify, and expand. There was the fence behind her. The River ahead was a broad band of slow-moving, turbid waters that, having completed its passage through the eastern side of the town and under its bridges, exited through a heavily guarded culvert under the fence to continue its flow southward. Some way downstream, further south, she saw a vessel on the water, a low, long boat, tied up at one in a row of wooden docks.

'Come,' Father said. 'We have to walk down to the River, to that boat. See it? That's our ride ...'

Mela felt obscurely excited. Her boat!

So they walked, deliberately slowly, Mela thought, her father taking his time, as if making the point that this was a holiday for them all. Mother, restless, kept checking through the papers in the slim case she carried, as she had since before they'd left home, as if she were desperate not to have left anything crucial behind.

But this wasn't home. The ground near the fence was criss-crossed by the tracks of carts and human feet. Further away from the fence, the wider landscape opened up, bare, grassy, with clumps of trees.

And further out still Mela saw tracts of land that glowed a brilliant green under the diffuse lights of the sky. These were farms, full of smartcrops, self-seeding, self-fertilising, their leaves and fruit and roots ready to eat, all of their varieties offering a complete package of nutrition for humans. Even their stems broke down quickly into a thread-like material from which cloth could be woven. All made from nothing but the light of the sky, and the dirt of the ground. A gift of the Perseid, her father would have said; a miracle of star stuff, her mother would reply.

And the crops were being gathered, slow, laborious work, by bent, dusty people.

The view opened up some more as they walked. Mela saw that beyond the smartcrop fields was a clutter of dwellings. Some were smart, some shabby – some mobile, on wheels or sleds. A few people, also dusty looking, moved between the huts, or came and went from the crop fields. *Shanty folk.*

Mela caught up with her father as they walked on. 'So these people—'

‘Ye-es? You’re going to ask me some kind of legal question, aren’t you?’

‘Ye-es,’ she said, mocking him.

‘It’s my day off too.’

‘The law never sleeps. You told me *that* once. The shanty folk.’

‘Yes? The crop-pickers over there, you mean?’

‘Well, who are they? What’s their status?’

Mother raised her eyebrows, shook her head. ‘Their status. What are you, forty years old?’

Father shrugged. ‘Shanty folk. They’re travellers. They camp around the town walls, or head from town to town if they hear word of work, or hand-outs. They are generally tolerated if they can offer useful services, such as working on the River, or on the farms. Even construction projects inside the town, sometimes.’ He pointed at Town Guards in the fields, easily visible, in their red-over-blue uniforms, standing rather than crouching, watching rather than working. ‘You see those supervisors? They’re seconded from the Fence Watch, whose job is to look out of the town anyhow.’

‘So these folk aren’t citizens of the town, of Procyon. Of any town. But they aren’t Immigrants either.’

‘Correct,’ he said. ‘An Immigrant was once a legal citizen of a town, a properly constituted community. And when an Immigrant shows up at our fence they are, in law, applying to become a citizen of our town. As an Immigrant your legal status is – pending. But you do have the residual right of a hearing.’

‘But the shanty folk—’

‘They have no legal status, as far as Procyon is concerned. Or any other town of the Empire. They aren’t citizens, they were never citizens anywhere as far as we know, and, most likely, they don’t want to be. Most of them live and die without ever spending more than a handful of days or weeks in a town. Shanty folk survive because at least some of them have useful skills: wood craft, river dredging, canal building. The law is loose about employing them, actually.’

‘A hundred years ago there were no shanty folk. But the world has got a lot smaller since then.’

‘There’s a sort of progression. You start as a citizen. If you lose your town you become an Immigrant. And if you and your family don’t find another place to live, you are shanty folk. And your children are born as

shanty folk, you see, and will stay that way. So it goes. Such folk are tolerated if they are useful – as are we all, in the end, I suppose. And they have their own culture.’ He smiled. ‘Shanty folk like entertainers. Story tellers, singers, musicians, jugglers, acrobats. Whatever. Something to distract them, during the long dark nights. There are worse ways to live than to be shanty folk. If you’ve had a good day, anyhow.’

Mother snorted.

But Ish murmured, ‘A good day. Just for today. Which I suppose is all any of us can hope for.’

Her remark surprised Mela. Ish might not be all that strong, she thought, but she was evidently deep.

Father seemed to be thinking something similar. He gave Ish a quick, almost embarrassed hug. ‘I don’t know how we are doing it, but we are raising some remarkable kids.’

Mother snorted. ‘And Tabor.’

Mela winced. ‘Even I think that’s mean, Mother.’

Mother just shrugged.

They walked on.

At last they reached the River itself. Now they followed the River’s bank, heading steadily south, away from the town, on a path worn and rutted by many feet and wheels – and by some kind of animal print, Mela saw with a thrill. The River itself was physically wider here than inside Procyon’s fences, where the flow was constrained by ducts and dykes and canals. Here it flowed freely, a little turbulent, the water a rich blue-grey thanks to the murk churned up from the basin. Along this stretch, if Mela looked away from the town and the shanty camp, she could almost imagine they were alone, walking the length of this great river – one of four such rivers, she knew, that drained the Heartland Mountains at the centre of this Earth. As if she were the first explorer of this Earth.

The illusion of wilderness didn’t last long. Her father began a slightly dull lecture on traces of imperial activity to be seen in the landscape, even this far out – culverts and built-up banks and even the remains of a riverside road, now not much more than a ditch in straight segments, with the stone long ago robbed out.

But then, not very far south of the town, they came to a stretch of bank lined with wooden piers that jutted out into the water – many of them very

ancient, Mela knew.

And at one pier, that boat was waiting.

Ish asked breathlessly, 'Is that one ours?'

Father just smiled.

Thrilled, the girls ran forward.

The river boat was slender, sleekly streamlined, maybe twenty paces long. There were small structures fore and aft, the aft being the crew's quarters and the captain's cabin, Mela soon learned, and the little hutch at the prow where the passengers were to shelter.

No time was wasted. When the crew had got the family and their luggage aboard and roughly stowed, the captain, a rugged-looking woman with brilliant red hair, ordered the crew to cast off the lines that held them to the dock. Then the crew – two men, one more woman, all taciturn, powerful-looking, *bored*, Mela thought – used poles to push the craft away from the bank.

Once in deeper water the boat seemed to surge forward, the south-running current surprisingly powerful, and the family staggered, grabbing on to the sides to keep from falling, Ish laughing, Mother growling, Father winking at Mela.

As soon as they were safely underway, the family quickly crammed into the little cabin that was to be their home for much of the ten days of the journey. Although, as Mother had insisted from the beginning, they would be disembarking at the towns they passed en route to the Tide, and spending nights ashore. 'Wherever possible,' she had growled.

Now, inspecting the furnishing, Mela saw two sets of bunk beds, four beds in all, one small privy with a sink, one table with two chairs and *one* small cupboard.

'Well,' Father said, 'I suppose it's what we were promised, even if it's a lot smaller than the captain suggested when I booked her.'

Mother just dumped her bag on the table and sat in one of the chairs. 'Oh, you always were a fool when it came to business, Tenn. Well, this will do, we'll survive. Or at least we won't *all* kill each other. Thank the stars Tabor isn't here.'

'I want a top bunk,' said Ish.

‘Do as you like. *I* want this table. There’s work to do before we reach Rigel.’ And she opened her case and spread papers over the table’s rough surface.

Ish, making good on her demands, jumped up into a top bunk and began spreading out her own stuff, a meagre supply of clothes and toiletries.

Father bumbled around in the tiny bathroom, muttering about whether the water supply was self-contained or out of the river, ‘*hopefully* sterilised.’

‘You booked it,’ Mother called, otherwise ignoring him.

Mela left them alone, and wandered out onto the deck.

There she found two of the crew, the two men, sitting near the prow of the boat with long poles and oars to hand. The woman was in the cabin at the back, apparently going over paperwork.

Of the crew on deck, the two with poles, both men, ignored her, as they patiently pushed the prow of the boat this way and that, ensuring there was no snagging on the banks as the boat followed the stream. But the captain, by the tiller, at least returned her gaze.

Mela walked that way, towards the stern, stumbling slightly as the boat shifted, rising and turning in the current that propelled it downstream.

The woman watched her approach. She was short, squat, strong-looking. Her vivid red hair was tied back, under a grimy peaked cap. She wasn’t particularly welcoming, but she didn’t turn away as Mela approached.

‘Khem,’ she said at last.

‘Sorry?’

‘My name. Khem. First thing folk ask.’

‘Oh ... all right. My name’s Mela. My sister—’

‘She’ll tell me herself. Five days.’

‘What?’

‘Next thing people ask. Five days to the Perimeter, given a bit of luck and fair weather. Five days back. Maybe longer, pulling against the stream.’

‘That’s in the—’

‘Contract. Next thing people ask. Just because it’s in the contract doesn’t make it so.’ She looked at the sky. ‘No contract with the wind and the rain, or even with the River.’ She eyed Mela. ‘They say the Perseid made a contract with the sky, the stars. Nobody else since.’

Mela was surprised by that, but nodded. ‘My father’s a Perseid—’

‘I know. Saw the brooch on his robe.’

‘My mother – as you probably know already—’

‘Starrist. Makes no odds. Keeping her clear of the banks.’

Mela had to think that through. ‘Right. What they are doing with the poles? I was actually going to ask—’

‘First stop Rigel. Tomorrow. Twenty kilometres downstream.’

Mela smiled. ‘You’re good at this game. Giving the answer before I ask a question.’

‘Game? It’s more boring than you’d think.’

‘I’m sorry. I can guess. Twenty kilometres a day, though. You could walk that easily.’

‘Be my guest. Horses.’

That word thrilled Mela. ‘I think if I was five years younger – it’s my birthday by the way—’

‘Congratulations.’

‘That would have been the first question I’d have asked. So the River is carrying us downstream. All the way through the towns on the way, all the way to the Perimeter. But how do we get back?’

‘*Horses*. That’s the civilised way. People are used sometimes. Immies, shanty folk, convicts. We do use them. Your father insisted on horses. Horses are cleaner, stronger, smarter, and better company, but more expensive to feed than Immies. Get some gloves. In the captain’s cabin.’

‘I’m having to decode that. Oh. You’re letting me have a try of the tiller!’

‘You’ll pay for any damage,’ Khem said kindly.



Mela remembered visiting the town of Rigel once before, with her mother, when she and Ish had been much younger.

Now, a day and a half after leaving Procyon, she sat in a small tavern with Ish and Father, while her mother was elsewhere, pursuing the business she had here.

Mela went on, 'I remember you and Tabor stayed behind on that first trip, because he was at school.'

'Right,' Father said. 'Your mother said she wanted to show you two off while you were still cute, so she said, to her network of friends, here at Rigel. Which might be true. Alternatively she mightn't have trusted you with me, at that age. She had her Aunt Vaer look in on us.'

Ish sighed. 'Let's be charitable, Father. This is our birthday treat.'

Mela suppressed a laugh. Her father winked at her.

But Ish was playing with her food, a plate of smartcrop much of which had been teased into the form of a tiny bird. 'I don't remember eating *this* before. Who eats birds? Birds are ... scavengers in the dirt. How disgusting.'

Father said, 'Nobody eats birds nowadays. But back in the past, people did. Also animals. So the theory goes. Though every so often the theory falls out of fashion, people think it was just a legend – until somebody rediscovers research showing how we have relic teeth and digestive systems able to process meat – I mean, animal flesh. That's why some smartcrops *look* like meat, even if they never went near an animal. This is a very old habit, Mela. But humanity is very old. Older than this Earth, if you believe the legends.'

'Which you do,' Ish said.

He spread his hands. 'I'm not your mother. You can make up your own minds which creed to follow, if any. But I don't think the sheer antiquity of mankind is in any doubt.' He glanced around at the shabby tavern. 'And we think even some of the names we use are very ancient too. Older even than the languages we use now.'

Mela nodded. 'We live in Procyon. This is Rigel. Further downstream, Capella, Arcturus—'

Father shrugged. 'We use these names every day. Even though we have no idea what they mean. But they must have meant something to the people who came to the Thousand Earths. Or the people who *built* it all, as some believe. Makes you think, doesn't it?'

Mela sighed. 'Wherever the name Rigel came from, I think I remember some of the people we met on that first visit, but I don't remember the town much.'

Father said, 'It may have changed a lot. You know, this place is that much closer to the Tide than Procyon. Some of it's been abandoned already. Stuff may have already been taken back to Procyon, or to towns even further upriver. Furniture, ornaments, statues, even architectural features like porches and flooring.' He smiled. 'Also, you know, it was probably always ... shabby. The further south you go, the further you get from the core of the Empire – from Sirius City and the Heartland – the more underdeveloped you find the place.' He dipped his finger in his drink and sketched concentric circles on the table top. 'You understand the shape of the world. It's like a vast, irregular shield. At the centre you have the Heartland and Sirius, seat of the Empire. Every direction you take out of Sirius, out from the centre, is "south", by the way. Further out you have the Provinces, and then the Hinterland, and further out still the Uncivilised Lands. You know that Procyon is close to the border between the Hinterland and the Uncivilised Lands.'

Mela looked around. 'This, uncivilised?'

'Compared to Sirius City,' Father said, 'oh, yes.'

Ish nodded. 'So why,' she said slowly, 'is Mother out there now buying and selling property? What's the point? I know she's tried to explain it to me, but I never get it. If this place is going to fall into the Tide anyhow—'

'Ah.' Father had finished his food; he wiped his mouth on the bit of cloth the tavern had provided, snapped his fingers to ask for more ale for

himself, more sweetened water for his daughters. ‘I knew this question would come up one day, as you grew up. Tabor never asked, you know. It’s a little tricky, but it does make sense.

‘Look – yes, Rigel will fall into the Tide one day. So will Procyon. But not yet. And Rigel will go *before* Procyon. And *that* is the angle that your mother works. Rigel falling a couple of years before Procyon *reduces property values today*, at Rigel. Comparatively. Simply because Rigel will go first. And that’s been known, it’s been in everybody’s mind for decades or more.

‘So, suppose I have a medium-size house in Procyon. The same price would buy me a much more luxurious place in Rigel, closer to the Perimeter. So I go buying, and make the best bargain I can – that’s where your mother comes in, she charges for searches and the agency work involved, setting all this up – so I can live beyond my means in Rigel, so to speak, in luxury compared to what I can really afford. If only for a few years before the Perimeter catches up.

‘And, look, the same logic applies to the towns down the line, further towards the Perimeter. Your Procyon property buys you *two* palaces in Capella, and Arcturus is so close to the edge that you could live like the Chief Magistrate of Sirius itself. You aren’t buying for a lifetime, you see; you are only buying a few years of luxury. What’s wrong with that? So some say. And that flow of money is what your mother skims off, selling and buying properties up and down the chain.

‘The trick is *not to be the last one standing* – not to be the owner when the Perimeter comes and destroys your property.

‘You do need to understand people a bit to see why it works. You have to be – cynical. Which means understanding greed, and people’s willingness to exploit the misfortunes of others—’

Ish said sharply, ‘The way Mother is willing.’

He held his hands up. ‘Right. I’m sorry. I shouldn’t have said that. You must listen, and make up your own minds. And I’m a hypocrite if I disapprove, because—’

‘Because it pays for his lifestyle too.’

Mother was standing over the table. Mela hadn’t seen her approach.

‘I’m sorry,’ Father said quickly.

Mother was expressionless. 'For what? For not giving me a chance to explain myself? As if I were one of the hapless Immies you try to *save*.' She emphasised that word with a sneer. 'As you said. My work is lucrative and does nobody any harm—'

Ish said, 'Save for some poor Immigrant at the end of the chain who lost her home before she needed to—'

Mela held her hand up. An old signal between the twins, that they shouldn't get involved in their parents' fights.

'Nobody forces anybody,' Mother said. 'Maybe the cash flows I help coordinate save people from even greater troubles.' She turned on her husband. 'Did you tell the girls that, Tenn? No, of course not.' She glanced around at the crowded tavern, frowning.

Mela noticed grease and grime on the walls for the first time. And she was aware that they were shouting over an increasingly rowdy crowd.

Mother said, 'Stay here if you want. I'm going back to the boat. Don't run out of money, dirty or otherwise.'

And she stalked out.

To reach the next stop, a town called Capella, would take another day of steady travelling.

This time Mela volunteered to help the crew.

The boat demanded a lot of physical work to keep it functioning – even just the poling, the steady labour of pushing its prow away from the tangles of weeds at the bank – and she soon found herself aching in unfamiliar places. But the weather was calm, the day cloudy but bright, and she got a better view up on deck with the crew.

They drifted smoothly, going with the flow of the River, passing one tiny community after another set in swathes of smartcrop farmland. They even saw a furniture forest gone wild, where the smartcrop had once grown in useful shapes and forms – planes, discs, cylinders, spheres. Nobody here needed furniture any more, and the crops grew distorted, overgrown, ignored.

And before long Mela began to notice that much of the wider landscape seemed abandoned, the fields crowded with unharvested smartcrops, their boundary fences broken – she vividly imagined herds of wild aurochs breaking down those feeble human barriers – and many of the human communities here, mostly just small clusters of huts, seemed empty.

The River itself was more or less empty of humanity too, with only a few barges passing their own – all of them heading upstream, drawn by horses or people, heading back towards Rigel and Procyon, and maybe, Mela thought with a distant thrill, even further inland, through the Hinterland and the inner Provinces – maybe even to fabled Sirius City itself, just as Father had described. The crews exchanged reasonably good-natured insults, and bits of news about the waterway – such as the sinking

of some old barge south of Arcturus, where you had to watch your keel as you passed.

The boat stopped a couple of times each day, for minor maintenance, to take on water, or just to give the crew a break, Mela learned.

At the last stop before Capella, Khem got out of the boat for a walk. Mela followed determinedly, splashing in borrowed waders through the shallow water by the bank to the drier ground. The boat was too small to stretch your legs, and she was glad of the chance to get ashore.

So the two of them walked some way inland, until they found themselves looking at another abandoned farm, with a riverside fence broken and pulled apart. The field beyond was full of overgrown smartcrop.

Khem beckoned her on. 'Come and see,' she said.

Mela hesitated before the fence.

'It's OK. I want to show you something.'

They walked through gaps in the fence, and then perhaps another half a kilometre. The soft wind rustled taller crop plants, some of them knee high.

And Mela thought she heard a kind of bellow, a deep, mournful sound.

She glanced back at the boat, wondering if somebody was calling, but nobody was in sight. Besides, the bellow had seemed to float out of the deep landscape, away from the water.

This land wasn't empty, it seemed. *Aurochs*. Wild ones. That had been her father's promise. Her imagination ran riot at the idea, all provoked by a single, mighty call.

Khem, meanwhile, stopped, bent and began to pick smartcrop buds and leaves, popping some into her mouth, the rest into a rough bag she carried. 'Here's something you shouldn't miss.'

Mela watched. 'Do you want me to help?'

Sucking her fingers, Khem shook her head. 'Just sample the wares. Go on, try it. Keep the top of your head screwed on.'

That puzzled Mela until she tried a couple of samples taken from the knee-high crop, soft red berries, a kind of crisp leaf that was edible too. The leaves were crunchy, salty, as if fried.

And the berries' flavour seemed to explode in her mouth.

'By the stars!' Her mother's favourite oath.

Khem grinned.

Mela crammed more into her mouth.

‘Hey, take it easy. The plants won’t poison you, but you could still choke. They aren’t *that* smart.’

‘So why do they taste so good? Nobody’s looking after the crop here ... Where is everybody?’

Khem looked south and sniffed. ‘Perimeter’s too close now. Farm abandoned. People just give up. But the smartcrop *here* doesn’t like that, see.’

‘Doesn’t like what? How can some plant *not like* anything?’

Khem picked another plant, manipulated it in her fingers. ‘Because it’s smart. The clue’s in the name. Old Farrell explained it to me once.’

‘Who?’

‘Farrell? Oh, one of the Perimeter Wardens. You’ll meet him. Quite a character. Has to be, given his job, I suppose. But, given his job, he’s had to work out more about the nature of the world than most folk. There’s what he’s seen with his own eyes while pursuing his career, and what he’s learned, and what he’s thought about.’

Mela had only dim ideas about what the job of Perimeter Warden must entail. Working at the edge of the dying world. It must make you thoughtful, she imagined ...

‘He’s also my dad,’ Khem said casually.

Mela stared at her.

‘Anyhow, *he* says that nothing about our world here, this Earth and all the others, is natural. Well, you can see that. *Somebody* built it all. But *he*, old Farrell, says that if the world was made, then so were the smartcrops. Made to feed humans. Stands to reason.’ She picked a small leaf from the plant she held. ‘That’s why they taste so good, to us. And he says they are efficient, too. Almost all the daylight energy a plant gathers up in growing ends up in the body of the human being who eats it.’

Mela frowned. ‘Well, of course it does. Where else would it go?’

‘I don’t know. Farrell says somebody told *him* about natural plants on the first Earth, growing with a lot of waste, growing bits you couldn’t eat. None of that with the smartcrops.’ She shrugged. ‘I’m no expert. I just remember bits of stuff I’m told, by people who probably know less than I do. And it’s all, apparently, very, very old. But all that makes sense, doesn’t it?’

Mela didn’t understand. ‘So why should smartcrops taste so good *here*, where they’re growing wild?’

‘Because they want to be eaten. Look – the smartcrop is *designed* to be eaten, to sustain people. And it needs people’s help to do that, even if it’s just clearing the ground, or feeding it waste. And this patch of smartcrop *knows* that nobody is tending it. So it makes itself as delicious as possible, to lure people in who’ll then stay and look after it. I think some kinds even give off smells, like perfumes, to draw you in. It *wants* people to eat it. Do you see? Don’t you feel like spending your life here, just lying on the warm ground, gulping down the crop?’

‘I suppose I do,’ Mela admitted.

Khem sighed. ‘And if the world wasn’t ending soon I’d probably feel exactly the same. Come on. Let’s get back to the boat.’

Mela grabbed hasty handfuls of the plants for her family, and followed her back to the River.

She wondered idly if these smart plants knew anything about the Tide and the advance of the Perimeter, and the end of the world.

And again she heard that remote bellow.

Capella, forty kilometres south of home, was, Ish pronounced, just like Rigel, but worse.

Mother had secured them an empty house, this time, for a couple of nights.

There was somebody to greet them when they showed up, a woman and a man, both elderly. Mother’s hire had included this much, she explained as they quickly unpacked: a service agency to clean the place and change the blankets and sheets and to stock the kitchen cupboards with basics.

When the couple had finished and gone, Mela felt a little uneasy walking into somebody’s abandoned home – and hastily abandoned too, it seemed.

The house was still full of furniture, and even some clothes and crockery in the cupboards. The girls quickly found there was nothing small and valuable left behind – no jewellery, no ornaments, not even many books: taken away, if not robbed. There was running water; Father quickly checked: apparently clean. The house, built around a couple of heat stalks, was still smart enough to keep itself pleasantly heated, neither cold nor hot.

The house was large, a little shabby, but must once have been grand.

Mother quickly appropriated a kind of study room with a big desk, and started to spread out the work she said she needed to get done in the two



nights they were staying here. ‘Including a further deal on this house,’ she said, paging through papers.

Ish said, ‘I wonder how the people who lived here feel about us coming here for a holiday.’

Mother fixed her with a glare. ‘Getting judgemental as we grow up, are we? Well, we are – *were* – going to go see the aurochs tomorrow. Maybe we should skip that if it all comes from dirty money—’

Ish crumpled quickly. ‘No. *No*. I didn’t mean—’

‘Too late.’ And Mother turned away, to her paperwork.

But Father had overheard. With an armful of stuff for the bathroom, he walked into the room. ‘We *are* going to see the aurochs. The three of us, if not you, Salja.’

She fixed him with a cold glare. ‘You’re undermining me, in front of them?’

‘No,’ he said, sounding weary but determined. ‘But, Salja, they must be allowed to make their own judgements. About moral matters and in other areas. Perseus knows they will need such qualities in the future.’

‘They should speak to me respectfully,’ Mother growled.

‘Agreed about that.’ Father looked at the twins. ‘You were wrong to speak rudely to your mother. Do you apologise for that?’

‘Yes,’ they said together.

Father said firmly, ‘And we go on safari tomorrow.’

Mother shrugged. ‘You can. I’ll work. That way I might get this finished before the world ends. Is that all right with you?’ She turned away, back to her paperwork.

Father went back to the bathroom.

Ish and Mela slunk out unhappily. Ish whispered, ‘Another nasty little moment we’re going to have to forget.’

Mela felt the same. But she whispered, ‘*Aurochs!*’

Ish grinned back.

So they unpacked, and ate, and talked a little, and slept in the strangers’ beds.

Mela was woken a few times during the night, by distant shouts, bangs, the rippling noise of smashed glass, laughter. And once, drawn to the window, she saw what looked like a house on fire, across town. It burned

bright under an overcast sky which, tonight, offered only a few glimpses of the Thousand Earths. Yes, this was a rougher place than Procyon, even more than Rigel twenty kilometres further upstream. With the Perimeter that much closer, with everything fraying, people were going mildly crazy, perhaps. Smashing up their valueless homes.

Nobody seemed to be putting out that fire.

Once Ish joined her at the window. Her small hand crept into her sister's. Ish said. 'I don't think I like it here.'

'It's only for a couple of nights.'

'Yes. Maybe I'll sleep on the boat tomorrow. It might be safer.'

Mela hadn't thought of that. Not a bad idea. 'Let's see what Father says.'

Ish sniffed. 'He'll do what Mother says.'

'Well, he'll want to keep her safe too. We'll see tomorrow. Come on.' She led her sister back to bed, as she had when they were little kids and Ish had had nightmares. 'Go to sleep. The sooner you sleep ...'

Ish lay back, eyes closed, and smiled. 'The sooner the aurochs ...'

Mela managed to get some sleep herself after that.

And she was woken by a clatter of horses' hooves.

They dressed hurriedly, even skipping a wash for once. Listening intently. The horses, if they were horses, made no noise save the clipping of their steps on the stony surround of the house. But they heard adult voices too – Father’s, what sounded like Khem from the boat, and another man’s voice, gruff, older-sounding, heavily accented.

Outside they found a small, rugged-wheeled, open cart waiting. Two horses stood in their traces in front of it, big, patient beasts, stepping, ducking their heads. Father was there, in a dressing gown, talking to Khem and an older man who held the horses’ reins in one huge, scarred hand.

Khem looked at the girls as they bustled out of the door. ‘Eager, aren’t we? Not even washed by the look of you. Shame you weren’t so keen when it came to chores on the boat.’

Mela frowned. ‘That’s not fair—’

‘Oh, never mind that,’ Ish said. Fascinated by the horses, she stepped forward, raised a hand hesitantly to the muzzle of the nearest, stepped back without touching.

‘Be careful,’ Father said quietly.

‘I’ve never been so close to a horse before.’

Khem snorted. ‘Then you’re lucky. I grew up around horses, like these two of mine. You ever tried slopping out a horse?’

The older man shrugged. ‘Lucky to have them at all. Horses, that is.’

Mela was confused.

Khem said, ‘This is Farrell.’

‘Right.’

‘Your dad.’

‘Right.’

‘And these horses are yours, sir?’

‘Mine,’ said Farrell. ‘I own these horses, and the ones we had before. Khem has slopped and fed them since ... can’t remember.’

‘Since I was old enough to do it,’ said Khem ruefully.

She didn’t sound resentful, however, Mela thought. ‘I thought you said your dad was a Perimeter Warden.’

‘So he is,’ Khem said.

‘So I am,’ Farrell said. ‘A Perimeter Warden who’s got horses. Nothing wrong with that. Horses are useful at the Perimeter, which as you may know is a mobile sort of place.’

Ish said slowly to Khem, ‘I’m confused. Like I missed half the conversation.’

Mela smiled and took her sister’s hand. ‘You’ll get used to it. Khem is ... enigmatic. But what she says always makes sense.’

‘Glad to hear it,’ Farrell said dryly.

But Ish was still thinking it over, studying Khem and Farrell, taciturn daughter and father. Thinking it through in her own way. She had always been more focused on people than Mela was, Mela thought now.

‘Your job must be strange,’ Ish blurted out to Farrell now.

His gaze was steady – his pale blue eyes like Khem’s, she noticed now. ‘Strange,’ he repeated.

She looked at Khem. ‘And strange for you. To grow up with somebody whose job is so bound up with the end of the world. It must have affected you.’

Khem scowled, and seemed to turn inward. Evidently she didn’t welcome that kind of analysis. She said, ‘I’ve been travelling for days with your mother. Dealt with her before that, hiring the boat and such. What do you think she’s doing? *That’s* all about the end of the world. My dad moves bits of rope around and keeps people safe. Your mother *sells* it, sells the end of the world. Who’s got the better job?’

Mela recoiled from her calm strength, her mild but evident disapproval. To her, Mela realised now, Mela herself was nothing but the spoiled brat of a crook – or at best a kind of legitimised thief.

Ish was glancing from one to the other, uncertain, unhappy.

That was the end of the conversation. At Mela’s quiet insistence the girls went indoors to wash, eat some breakfast, and to dress for their expedition.

As they made ready to leave, their mother checked them over cursorily, said nothing, then went back to her paperwork. As they left the house, she called, 'I may be out when you're back. Business. Feed yourselves.'

That was no surprise.

They were surprised, though, when their father showed up, still in a heavy night-time gown. 'I need to work too,' he said. 'Look – I know I said I'd come with you. Partly to be sure you're safe. Well, I think I know Khem well enough now ... And I trust you, both of you.'

Ish seemed distressed, and grabbed his hand. 'Come with us, Daddy. I always thought you would.'

He hugged her. 'So did I, sweet. But I have seen the animals, long ago. Some of them, I mean. It's your turn now. Maybe your only chance.'

That chilled Mela. But she just hugged him too, pulled her outdoors coat tight, and went back out to where Khem, Farrell and the horses were waiting.

They both needed help to get aboard the cart, whose seats were at about Mela's head height. The only step up was to use the fat spokes of the cart wheels.

Ish sat up front beside Khem, who had the reins, while Mela sat in the back with the enigmatic Perimeter Warden. Khem encouraged the horses with a snicker, and the cart lurched forward.

Mela, her back resting against a side panel in the open cart, almost fell out backwards.

But she steadied herself, observed how Farrell had lodged himself in one rear corner of the cart, and cautiously made her way into the other corner. Braced against the wooden panels, she was a lot steadier.

Once the cart had diverged off the road by the house and started to cross open ground on its wooden, iron-rimmed wheels, the ride got bumpier yet. Mela was uncomfortably reminded of the bowl of dried-smartcrop cereal she had just had for breakfast.

When she was confident she wasn't going to throw up or faint, she dared take a look at Farrell.

The Perimeter Warden was watchful. He seemed to be keeping an eye on everything: the horses handled by his daughter, the passengers, the cart itself, the ground they covered, even the increasingly turbulent River.

At length he glanced over at Mela. He draped an arm along the wall of the open cart beside him. 'Sit like this. Steadies you a bit more.'

She tried that, and it worked. 'You'd be a good teacher. You don't lecture. You just show me what to do, and it's up to me if I follow or not.'

He shrugged. He seemed neither surprised by nor interested in the comment.

Curiosity nagged her. 'You're a Perimeter Warden. There must be others. Many, many others. All the way around the world?'

He shrugged again. 'Never counted them.'

'How did you learn how to do your job?'

'By watching. Not that hard.'

'Do you have, umm, apprentices?'

He grinned. 'Set on fixing me as a teacher, you two, aren't you? They pick it up, the recruits. The job itself, simple enough. You got your predictions, your next position, the moving of the markers and the ropes. It's the people makes it tricky.'

She thought that over. 'The people who have to move because the Perimeter moves.'

'And the people who can't. Or won't. *Look.*' He pointed at a spot on the landscape a few yards from the truck.

She had to shuffle over in the truck bed to see.

It was an animal, flat on the ground, not much larger than her hand. Grey-brown, feathered, with two stubby wings and heavy clawed feet, it lay motionless on a mound of fresh earth.

She tried to remember the word, from picture books she had seen. 'It's a \_\_\_'

'Bird. It's a bird. Can't remember the type, the species. Never could. All look the same to me, and all live the same. Look at it lying there!'

Ish was leaning out of the cart to see. 'I think it's closed its eyes. It's breathing, but it's closed its eyes.'

'Could be,' Farrell murmured. 'Maybe it thinks that if it can't see us, we can't see it. Or it's fooling us that it's dead and spoiled, too spoiled to eat. There's worse logic.'

Once the cart had passed the bird wriggled into life, scattering dirt in a tiny fountain with its scabbling feet and wings, and in an instant had burrowed out of sight.

‘Once birds flew,’ Ish said. ‘I know that much from school. Flew in the sky with those wings.’

‘Not here, in the Thousand Earths, they never did,’ Farrell murmured. ‘So they say. Nobody knows why. Or at least nobody who ever talked to me about it knows why. See, people came here from Old Earth – so they say – to empty Earths like this one. So everything you see here that’s alive, they must have chosen to bring, deliberately, or maybe they brought by accident. But not one of the Thousand Earths is exactly the same as Old Earth. And not everything from Old Earth gets by here. So here, something about the birds makes them – well, not want to fly.’

‘Magnetism,’ Khem put in, over her shoulder. ‘That’s what I heard once.’

‘Not from me you didn’t,’ Farrell said. ‘So anyhow, now they burrow. Keeps them safe from the predators, the raptors and such. Which are big birds themselves. Didn’t go extinct as so many other species must have. They survived the end of Earth, but lost the sky. Sad thing, that—’

‘Oh, look!’ Ish, at the front of the cart, pointed and tried to stand.

Khem grabbed her coat belt and pulled her back down. ‘Sit still, you idiot.’

Ish turned to Mela. ‘Look, though ...’

And Mela saw it. Horses.

Big horses – bigger than the cart’s draught animals, not just a few as she had seen drawing carts around Procyon, but a whole *herd* of them. She knew that word, even if she had never seen such a collection before.

Khem let the cart roll quietly forward as they all looked. Their own horses plodded on, but whinnied softly. Khem murmured soothing words.

The wild animals were tall, Mela saw – taller than the draught animals, long-legged, their shoulder height higher than a human’s head. Their bodies were covered in smooth brown fur, and they had long, fur-covered ears, which lay flat against their skulls.

They huddled together, a fluid mass, as they crowded around the stream, those long necks dipping down.

Farrell said, ‘Something else people didn’t kill off. Brought them here. Let them change, grow larger probably, filling some place in this world that was empty. Learned to live off the smartcrop, I suppose. Or it learned how to feed *them*. I don’t know how it all works.’

‘Just be glad it does,’ Khem said.

‘The animals come down to the water,’ Ish said, understanding. ‘To drink. That’s why you brought us along the water course. So we could see this.’

Khem grinned. ‘You really are smarter than you look. Yes, that’s why. To give us a better chance to see them close, or fairly close, and the other way around, where they won’t spook at river traffic and people. Otherwise—’

The horses suddenly scattered, with animals, adults and foals, dashing away in every direction.

And now Mela, startled, saw why. It was another herd, a pack of another kind of animal: low, sleek, strong-looking, with sharp beaks, talons protruding from stubby wings like knives, Mela thought. They were big, each perhaps the size of a ten-year-old human – smaller than the horses, but strong-looking, and evidently fast.

‘More birds,’ Ish said.

‘Raptors,’ said Farrell. ‘You still get them in town, don’t you? Scavenging? A while since I’ve been in town.’

‘Nasty things,’ Mela said. ‘But a lot smaller than these.’

Farrell shrugged. ‘Well, these are the cousins of those townies. Nasty *big* things, but brown. Because if they were black they would be easier to see, out here. Birds used to fly. These don’t need to.’

There was a distant squeal. A flurry at the back of the pack of retreating horses, a sudden scattering – the raptors closing in around a fallen form.

‘Oh,’ Ish said in a small voice. ‘Sounds like they got something.’

‘You did want to see all this,’ Khem said – comparatively kindly, Mela thought.

‘I know, I know,’ Ish said. ‘I’ve read all about this. But—’

It was different when you were close to it, Mela thought. An animal, a conscious, living thing, maybe with offspring of its own, ending its whole complex life to become lunch for something else.

Ish said, eyes wide, ‘Mother would say it will make no difference when the Tide rises and covers us all.’

‘She would,’ Mela said. ‘But that’s no comfort, is it?’

Ish turned away.



They rolled on, stopping for toilet breaks, to eat some of the food Father had packed up for them, to drink some water. When she got the chance, Mela nibbled at the local wild smartcrop, as plaintively delicious as before.

After the second stop, with the cart trundling noisily along the bank of the tributary, Ish complained, just a little. ‘We’ve come a long way. Dark soon. Maybe we won’t get to see the aurochs after all?’

Khem shrugged. ‘No promises.’

‘I know.’

Farrell said, ‘They aren’t actually aurochs. The beasts you’ll see. Or not. Their ancestors used to be a farm animal, that people kept for meat and milk. Like they kept the horses for labour and riding. These big grass-eaters, they turned them into something like what aurochs *had* once been, even earlier – whatever they were. The aurochs being ancestors to the milk beasts. It was the nearest you were ever going to get to having the real aurochs come back. But there aren’t many of them. Not any more. No room. Just as there aren’t many of those big raptors we saw, even. You were lucky to see *them*.’

Ish scowled. ‘That’s not fair. I mean – *why*? We saw that burrowing bird straight away.’

And they had seen plenty of them since, Mela realised. Some of them in towering mounds of earth. ‘There are lots of burrowing birds,’ she said, thinking it through. ‘But—’

‘But there are a lot fewer of those killer raptors,’ Farrell said. ‘There isn’t the room for any more. In the world, I mean. Not now. This is what I’ve learned by listening at the Perimeter. They say each raptor pack needs a territory all to itself, with horses and such to hunt. A space twenty kilometres across, or more. But you need a *hundred* packs for them not to become inbred. I mean, to avoid cousins having babies with cousins. So really you need—’

‘A space hundreds of kilometres across,’ Mela murmured.

‘Or thousands. Right. And it’s the same kind of numbers for the wild aurochs. They are still spread out. They have to be, there’s only so much of the adapted smartcrop for them to eat in any given area. They must have started getting crowded hundreds of years ago. And there’s not so many as there were, even when I was a kid. So we might not be lucky enough to see any today.’

Ish stared at him. 'You're not what I expected. I don't mean to be rude. Whatever you say, you really are like a teacher ... A scholar.'

His expression didn't change. 'No scholar, never had a teacher. But I listen.' He tapped one grimy ear. 'And I hear the Tide sweeping up the animals and the birds and the towns, sweeping everybody up in the end, rich and poor, ignorant and learned.'

'Mostly people run away from it. But some people who want to know stuff, to find stuff out, *go* there, you see, to see what's what, as well as those who don't know anything. I'm not a scholar. But scholars come to me. Well, they have to, like everybody else. Because the Perimeter comes to *them*.'

Mela frowned. 'How big is the world?'

'I know that,' Ish said. 'Once it was thousands and thousands of kilometres across. And it had a hundred million people in it. So they say. But now—'

'Not much more than two thousand kilometres wide,' Farrell the Perimeter Warden said bluntly. 'But *still* got most of a hundred million people—'

'Look!' Ish pointed at the skyline ahead.

Where, Mela saw now, a line of complex shadows was moving against the still brightening, Earth-littered sky. Mela recognised the silhouettes from picture books, from that one specimen that had been brought through Procyon.

Aurochs. Walking.

Khem flicked at her reins, and the horses nervously pulled the rumbling cart forward.

Mela was still thinking about what Farrell had been saying. 'The world is too small now. For the aurochs.'

'For the aurochs, *and* a hundred million people, yes,' Farrell growled. 'There isn't the cropland they need to feed them—'

Ish leaned forward eagerly. 'I think I saw something else. Just behind that low hill to the left, where the River bends around it ...'

And Mela thought she heard a sharp cry of pain. She looked back at Farrell.

'Stay easy,' he said levelly. 'Whatever we see around this corner, just stay still. You don't want to panic the horses.'

They were tense, silent, as the horses gamely hauled the cart, until they came around the hill.

And saw the aurochs.

Five, six, seven of them, Mela saw in a glance.

Out here, in their context – where they weren't overwhelmed by the scale of a town – she could see they really were big beasts, surely as tall at the shoulder as her own head height, with coats of thick brown fur, and some of them – the males? – with twisting horns. They were all dipping their muzzles to the water, big nostrils flaring. And—

'Oh, look,' Ish said. 'A baby. See, between its mother's legs? It's trying to drink too ...'

But beyond the aurochs Mela saw people, ragged but purposeful, moving stealthily on foot. They brandished weapons of some kind, what looked like prods, goads. They didn't speak, but made hand signs to each other, pointing, waving.

'Stay easy,' Khem said calmly. 'Whatever happens, don't react, or we could get trampled ...'

Ish, clearly distressed, said, 'Are they hunters?'

'No,' Farrell murmured. 'Well, not the way you think, anyhow. They are more like Guards. I heard about this. You hear about everything at the Perimeter. I told you, there isn't room for these beasts any more. Not the room they need. So these folks – the Empire itself sends them – are going to capture the aurochs, take them in, some of them anyhow. Lead them past the towns, into the Provinces, even into the Heartland Mountains, where there is still some open ground. This has been going on for a while.'

'A reservation,' Mela said. 'To save the aurochs, or a few.'

'Which is better than nothing,' Khem said. 'Although these hunters will take some down for their own sustenance. They'll be safe there for now. Although in the end there will be no room for anything at all.'

And Mela knew that was the answer, in Khem's fashion, to her next, unspoken question. *And when the Tide advances further, day by day, and closes in towards the Heartland itself ... what then?*

The hunters moved in now, with prods snapping, even whips. The aurochs had nowhere to go, pinned by the river. They turned, squalled, roared, the bulls lifting their mighty heads. The hunters charged.

‘Come,’ Khem said. ‘That’s enough for now. Only going to get ugly.’

They turned away reluctantly. Mela, looking back, tried to see what became of the baby, but it was lost beneath the legs of the panicking, stampeding adults.

Ish’s hand slipped into Mela’s grasp. ‘Shall we go back to Mother and Father?’

Mela caught Khem’s eye. Khem nodded.

Another twenty kilometres due south, another day's drifting downstream from Capella, with the horse-drawn cart tracking the boat.

Now they came to the last town before the Perimeter – or rather, Mela reminded herself, the last surviving town, for now. She was getting used to Farrell's company, maybe, thinking like a Perimeter Warden, to whom the world was a fluid, changeable place. A shrinking place.

The town was called Arcturus.

And Arcturus, close to the River like its siblings all the way back to Procyon, was only ten or twelve kilometres from the Perimeter itself.

Not that they were going to get to see the doomed town up close.

Khem led the boat past the city, ignoring narrow canals that led some of the River water to the town walls. A few folk did come out to the edge of town to peer as they past. Mela felt the need to look away, not to make eye contact even at this distance.

Even from a distance, Mela, sitting up on the boat's structure beside Farrell, saw how static the town was – no traffic approaching it by road or by the water, no people working the smartcrop fields beyond the fence.

Khem tied the boat up far from the River's closest approach.

But Ish, that bit more naïve, more curious, stood and stared back. 'Look, Mela. There's a sort of rope barrier around the town. Can you see? Just a crimson rope on stakes. The people are standing behind it ...'

Khem glared that way too. 'Yes, it is.'

Ish just looked puzzled, but Mela was used to Khem by now. 'The question – is that a Perimeter Warden rope? Like they have at the Perimeter itself.' That's what her father had told them to expect.

Farrell shrugged. 'This far out it's just to remind folk. Or train them, maybe, that you don't want to be on the wrong side of a rope like that

without a Permit. The closer you get to the Perimeter the more flaky people get. Of course you have to remember that most people who have Permits have probably already left this place—'

There was a flash of light, a dull concussion.

Mela thought they all flinched. The horses reared, stumbled.

Everybody looked over at the town.

A pall of greasy black smoke was rising up from somewhere in the heart of Arcturus, and Mela saw a flicker of flame. She thought she heard screaming – and perhaps laughter.

Farrell said, 'There you go. Probably an illegal still blowing up.'

Ish said, 'Shouldn't you be going to help? I mean—'

'Help how?' Farrell asked. 'Not my job. Not a fireman. Not a doctor. Guess I might be able to fix the still.'

'This is why the Wardens stay calm,' said Khem. 'At the Perimeter. With their maps and plans and boundaries and bits of rope. Makes people feel calm too.'

Mela thought she understood. 'So that it looks as if everything is orderly, under control. When in fact it's all falling apart.'

'It's all a trick,' Farrell said. 'Like being a father with his kids. You stay calm, they stay calm. It's all a trick.'

Khem laughed at that. 'Ha! You, a father to the world.'

'All you can do. We'll camp here, then go on in the morning, before everybody wakes up and comes out to stare at us.'

Mela asked, 'On to the Perimeter?'

'No, not in the boat,' Khem said, anticipating the next question.

Ish was wide-eyed. 'We'll be in the cart because the River runs too fast here to be safe.'

Khem grunted. 'Hard pulling for the horses coming back. Even from here, yes.'

'And the River's running fast because it's falling off the edge of the world.'

Khem said nothing.

Mela felt Ish take her hand, as she used to when they were smaller, and their parents were arguing.

‘A burning town over there,’ Ish said softly. ‘And only a few hours to the edge of the world. It’s all awful, Mela, isn’t it?’

Mela squeezed her hand. She had no comfort to offer.

‘We could just go back to the boat,’ Ish whispered. ‘Khem would take us.’

‘Is that what you want?’

‘Yes. No ...’

On the wagon rolled.

After a restless night for the twins at least, they washed in boiled river water, nibbled on wild smartcrop – unreasonably delicious – for breakfast. Packed up the crude tents that had sheltered them for the night, harnessed the horses, got back aboard the wagon.

And rode on silently towards the Perimeter.

At first the countryside seemed empty, of people at least, as bare and uninteresting as further out. Just the River, the rutted track they followed south along its bank, and the scattered stands of stunted-looking smartcrop.

But there were subtle changes, Mela thought. Was the southern sky ahead mistier, paler? And in the further distance she thought she saw clouds streaming north, back the way they had come. Some looked heavy, like rain clouds, but most were higher, streaky. Through that increasingly complex sky, she thought she could see Earths, just a handful.

And now, peering ahead, Mela thought she saw a kind of horizon, an edge to the world – no, it was more as if she were approaching a wide cliff top, she thought. A sharp drop in the land, to left and right, as far as she could see.

As they went on the light slowly changed. The clouds reflected a kind of silvery glow, now. The River seemed to flow faster – fast enough for the water, brown with dirt, to make a soft, rushing noise. It spread out too, the single main channel shallowing, the water fanning out into multiple streams, some quite minor.

Farrell, guiding the horses calmly, kept the wagon well away from the wider waters, the softer ground.

‘The river’s spreading out,’ Ish murmured to Mela. ‘Because it’s approaching its mouth. As if it was pouring into a wider lake. But—’

‘But this isn’t any lake,’ Farrell said. ‘No *ocean*. Used to be an ocean there, beyond the inhabited lands, once. That’s all gone now.’

Again, Ish took Mela’s hand.

Other features in the truncated landscape ahead became visible now. Snakes of smoke, rising up. People, in what looked like rough camps, huddles of tents of some brown fabric. People sitting around sparks of flame.

Abruptly Ish stood up in the cart, and frowned, squinting. ‘Oh, I see. *There’s the rope*. The Perimeter rope itself. See, Mela? ...’

It was the finest of lines, a ruddy thread supported by a row of slim posts, neatly paralleling the cliff-edge limit of the ground. The end of the world, staked out by a bit of rope.

Ish pointed at people moving along the approaching edge, a dozen or so split into pairs and threes. ‘That lot are *beyond* the barrier.’

Farrell drew the wagon to a halt. ‘This is near enough. We’ll go on foot the rest of the way. No point in a big fuss and alarming everybody. Keep calm,’ he said.

*Keep calm*. That was a Warden’s mission statement in two words, Mela thought, as she clambered down from the cart.

She felt it was a great comfort to have her feet planted on solid ground. Again, Ish took her hand.

Farrell led the way forward, heading without hesitation towards the edge of the world.

Ish held Mela’s hand, tight.

‘Walk where I walk,’ said Farrell. ‘Step where I step, if you can. And if I say move back,’ he went on softly – and he didn’t finish the sentence.

Now Mela made out more detail. The grassy sward she walked on came to a visible end, not far beyond the crimson rope, like the edge of a ragged cliff in some storybook depiction of the Heartland Mountains. Beyond that, only a pearly, featureless light. What people had once done with this land wasn’t clear. She did see a fence, running down to the edge and ending in a ragged, dangling rip – and then, further back, what looked like a collapsed house – or rather, half-collapsed. Somebody’s home, falling into – what?

Farrell said, ‘You understand what’s happening here? The Tide, the Substrate, is the base layer that holds up our world. Which is a big slab of



rock over the Substrate, and a layer of earth and stuff on top of that, with us and our homes and our families on top of *that*.

‘But the world is shrinking back steadily. Sixty metres a day now, so we are recording. All shrinking back, all around the world, what’s left of it.

‘And it doesn’t do anything neatly. You get great rock slabs sticking out over the Substrate until they break off and just go crashing down. Or sometimes you’ll get a slab breaking off *before* the exposed Substrate ledge has reached it, and it sort of slides off down, off into nothingness. Doesn’t make much difference to *it* if you happen to be sitting there picking your scabs at the time.’

‘It’s a sort of empty place,’ Ish said. ‘Not many houses ...’

Khem said, ‘We brought you here on purpose.’

‘You wouldn’t want to see the Perimeter taking down a town,’ Farrell said.

Ish seemed to close in on herself, evidently imagining that.

They had got to within a few paces of the crimson boundary rope.

‘This is where we stop,’ Farrell said firmly.

‘He means it. You’re on your own if you go further,’ Khem murmured.

‘But a few people are going in closer.’ Ish pointed.

These were the other folk Ish had spotted from further out, not the campers. Mela saw that some were indeed moving forward, working in pairs, one bracing while the other, handholding, got that bit closer to the edge.

Ish asked, ‘What are they looking for?’

‘Stuff in the ground, maybe,’ Farrell said. ‘Old stuff. The world is an old place, you know, very old, and some of what used to be here ends up in the ground. Bones of vanished animals. Ruins of old cities, all flattened and crushed and burned out, with layers of dirt over the top. Even ships, some say – not like the river boats: big metal ships that once flew in the sky, to other Earths, maybe. Or all the way to the stars like the Perseid is supposed to have done. Just eroding out of the ground, as it all crumbles. Glimpse it and it’s gone.’

Just as her father had told Mela, of how the very earth was full of shards of the past – even at Procyon, and now here.

And Mela thought she understood now why these people – enthusiasts? philosophers? – were prepared to take such a chance. To see the long-gone

history of humanity just eroding out of the crumbling ground, even if only to have it snatched away in moments.

‘My father was a Perimeter Warden,’ Farrell said. ‘And his mother before him. And on back, some branch of the family was always in the game. And *they* say it used to be easier. Slower.

‘See, the way the world is crumbling – it’s shrinking back at a steady rate, if you count it as *area*. And it’s a big loss, every year the same as a big square slab of rock about twenty kilometres on a side, lost to the world, forever. All around the Perimeter.

‘Nowadays, see, the Perimeter moves back about sixty metres a day, or would if it was even. But in the olden days, when the world was bigger, the drawback must have been tiny. I don’t know. Millimetres a day! All around the Perimeter. Why, once ...’

Mela imagined it now, teams of Wardens all around the world, all steadily working, pulling back their boundary markers and ropes over and over, as the edge of the world crumbled. As they had for centuries, she supposed. Back and back, the demarcation line defined by the rope in their hands sweeping over trees and houses, and people ...

As Farrell spoke on, Mela was no longer listening. An impulse overwhelmed her. She let go of Ish’s hand.

Stepped over the crimson rope.

Ish called, ‘No, Mela—’

‘Just a couple of steps. We can never do this again ...’

Farrell, Khem said nothing.

It was only a few steps.

She didn’t dare go as far as the daredevils or treasure hunters or whatever, not as near the edge as they did. And in the end she couldn’t get close enough to the edge itself to see the ancient animals and starship wrecks eroding out of the crumbling earth.

But she did see what lay beyond the edge.

The River, pouring at last over the lip of the world, dissipated into a floor of mist, a floor that obscured whatever lay below.

The sky above was obscured too by water, by those streaming clouds – all that water pouring as vapour *back* over her head. Of course, she thought, it must be this way: some kind of mechanism to trap the water that poured

off the edge of the world, from all the draining rivers. Water cupped and vaporised, and then somehow sent back to the interior – presumably all the way back to the Heartland Mountains, where it would rain out again, pour back down the river valleys once again. An unending cycle that sustained climate and life on the world, connecting Perimeter to Heartland. As if the whole world was some massive, integrated machine. As perhaps it was.

And now, looking straight ahead through the clearing layers of mist, she saw the Substrate itself. A plain, smashed and broken – like glass, she thought, a glass floor to the world.

The Substrate which lay under the whole world. And to which every interred corpse in every graveyard was promised repose, according to the Perseids – as Aunt Vaer had died believing. Was there really some kind of sanctuary to be found beyond death, down in that silver mystery? Was it just a consoling myth to comfort those left behind ...?

She had an odd impulse to walk further, steadily, past the peering philosophers, to step beyond the end of the world, to fall and fall past the spaceships and aurochs, fall and fall into that glassy mystery—

A hand on her arm. She was pulled roughly back.

‘Sorry.’ It was one of the explorer types, a woman, tall, head shaven. She carried a pack, open, with writing materials; she seemed to have been sketching. ‘My name is Seviad. Of Rigel. I’ve come out here a lot, and I’ve seen your sort of reaction.’

‘The Substrate—’

‘The whole view is hypnotic. You’re not the first I’ve seen come close like this. I’ve never seen anyone actually fall. Well, aside from one deliberate suicide. And it *is* suicide, if you fall into the Substrate. The end of our sort of life, at least, whatever the theories say about what happens next ...’

‘Thank you.’ Mela felt a mix of emotions, of reactions: a scalp-prickling realisation, a delayed fear, as she realised how close she had come to slipping over. Shame that she might have put Ish through the experience of watching her fall. But, more than that, a deep stomach-twisting embarrassment.

They walked back towards the rope.

‘I’m sorry,’ she said.

‘You don’t need to apologise to me. How old are you, fifteen?’

‘Seventeen. Just.’

‘I was the same at your age.’ She looked around thirty to Mela.

Mela drew herself up. ‘I am Mela of Procyon. That’s my sister, Ish. My father is a Magistrate.’

‘Procyon? Well, I might see you again. I have Permits.’

*I might see you again when the world’s end comes a bit closer, and I have to abandon my own home.* That was what she meant.

‘Yes,’ Mela said. ‘You’ll find my father.’

‘Ah. He’ll probably have to process me ... here’s the rope now.’

‘Thank you.’ She stepped over it.

Ish came to meet her, gave her sister a hug. ‘Don’t ever do that again.’ But she seemed abstracted.

Seviad moved away, smiling. ‘I’ll give you your peace.’

Ish kept hold of Mela.

In the end Ish broke the embrace and stepped back. ‘Why didn’t they *tell* us? Mother and Father. Tell us it was like *this*. All this destruction.’

Mela shook her head. ‘Maybe they waited until we were old enough to work it out for ourselves. To come see for ourselves.’

‘Yes. But all this clutter will reach home, reach *us* at Procyon, in another five years. That’s all. Five years ago we’d just about given up playing with our dolls. Five years is *nothing*. What then?’

Mela had no answer. It was something she had yet to face, she supposed.

Ish glared at her, then turned away.

Khem had heard all this. ‘You two are done here.’

She meant, Mela realised, they had learned all they were supposed to learn.

Mela asked, ‘Can we go home now?’

‘While it’s still there,’ Ish said. And she stomped away to the wagon.

## *Year 22*

Time wore away.

Soon there were only five more years before Procyon would be lost.

Then four, then three.

Then two.

It was then, three years after her jaunt to the Perimeter, that Ish first heard about the Holding Camp, and told Mela about it. A place that arisen outside Procyon itself, a short walk away, generally ignored. Where they were putting people who didn't fit anywhere else, but were turning up even so.

And Ish wanted to go see it.

Mela, twenty years old, filled with curiosity and dread, tried to discuss it with her father.

Not her mother, of course, who was busier with her meetings and paperwork, her buying and selling, than she ever had been. Now she was even getting visitors from Sirius itself, it seemed.

Even Father had only platitudes. 'Don't waste today by fretting about tomorrow. About people you can't help, things you can't change.'

But he, too, was becoming busier by the day. He was a Magistrate, and Mela had learned that these days a Magistrate's key role, reporting to the city council, was dealing with the flow of Immigrants walking up the River, and their rights of entry to the city, or otherwise. Once a trickle, this was now becoming a flood – though a flood that would dwindle with time, Mela supposed, as the threatened communities downstream emptied out one after another, and fell to the Tide. But for now, listening to both her parents'

conversations, she detected more urgency – more friction – a sense that pressure was steadily mounting on the government and society of Procyon, in which they played their different parts.

And, watching her father work, she began to sense what her own career choice was going to be, in a few years' time.

When she told her father, he exploded.

'You want to train as a *Magistrate*? Really? Do you have to bring this up now? You know what your mother will say ...'

She didn't dare raise the subject again. But she and Ish were still curious about the Holding Camp – Ish for sheer curiosity, and Mela because she had the sense that this was the sort of thing Magistrates had to deal with.

Ish was all for breaking out of the town's fence and just go jaunting out into the countryside. 'We have to go see it,' she said. 'There are old people and children and everything, like a whole town out of nowhere. Come on! ...'

But Mela was more hesitant. They needed some kind of proper permission. Father had talked to them about how much more hazardous the world was than even a couple of years earlier. 'You may be young, but that matters less and less now if you break city laws. And especially if you go outside the fence ...'

So now Mela insisted they go to Father to ask him for a couple of short-term Permits: permission slips for short journeys outside the fence. And she told him about going to the camp.

He pursed his lips, as expected. 'Why do you *want* this?'

'I want to see how it works, how we look after those people – I want to understand. If *I'm* ever to be a Magistrate ... Come on, Father. You're in charge of this stuff! Can't you just organise it for me?'

'Don't tell me it would be educational.'

'Well, it *would* be educational. Mother once said – well, that *you* have the power of life and death over Immigrants.'

The smile vanished. 'She shouldn't have said that. But now there is such pressure on our boundary ...' He looked at her steadily, seriously. 'What I'm telling you is that if you mess this up I may not be able to get you back in. Back inside the fence. Do you understand? This isn't a game!'

Mela felt deeply disturbed. 'Do you really think we shouldn't go, then? We won't if you say not to.'

He closed his eyes. ‘Yes. You should go. I can’t protect you from the future. Nor should I try. I suppose you need to develop survival skills. Go. Try to understand what you see.’ He put his hands on her shoulders. ‘Just be careful. Come home safe. All right?’

She promised.

He sorted out their passes, and the next day let them go.

Father’s passes sent them to the East Gate.

That, Mela suspected, was partly because Father knew one of the Fence guards posted here, a woman in her twenties called Tiso. Mela knew that Father only had Tiso’s name because she was some kind of friend of Tabor’s. And *that* was only because Father had been called in over some disciplinary matter concerning his son.

They slowed at the gate as they approached this woman, encased as she was in tough-looking armoured chest plate and helmet, with a variety of weapons visible, including a stabbing sword, a net, a shield. In her red-over-blue colours she looked like a bigger, meaner, female Tabor, Mela thought immediately.

She didn’t smile as the sisters approached. But she took their passage Permits, stamped them, handed them back. ‘One use only.’

‘We know.’ As Father had instructed her, when she got the Permits back Mela checked front and back to make sure they *were* indeed the passes she had just handed over; such bits of paper could be valuable. Father trusted Tiso, but he said there were a few Guards on the boundary fence who would swipe a too-trusting citizen’s ticket, substituting some fake, in order to sell the original to some desperate Immie from Arcturus or Capella.

Their passes approved, with Tiso watching them go, the sisters set off through the gate and headed further east. Mela didn’t feel comfortable until the Guard had receded from sight.

And as they moved away, Mela looked back to see the town fence from the outside, an unusual view for the twins these days. The fence itself had been reinforced with a wall of stout trunks, the smartwood studded with broken glass and bits of metal, and an outer barrier of tall spiked stakes anchored in the ground. Much of this was new, hastily built in the last few years.

And the ground around the fence was soiled, broken, some distance out. The landscape outside the town was generally less populated than before. The shanties to the south had been long dispersed, their inhabitants expelled – or, much more rarely, granted a place inside the city itself. With a start Mela realised she had no idea what had become of those others who had lived there, adults and children, families – some for years, even generations, she supposed. Father must know. Though if he did he'd said nothing about it.

The world had no room for shanty towns any more. The only place you could go was the Holding Camp.

It was still a good way to the camp. They walked under a perfect blue morning sky, with a handful of brighter Earths hanging like toys in the light.

The Immigrants and their shelters and belongings were just a grimy smear on the horizon.

By now Mela had learned something of how the camp had come about, and why it was where it was. With time, as predicted, a stream of people had come north from the downstream cities as the threat of the perimeter had closed in on them. Mostly they had followed the River – but as they had started to approach Procyon in numbers, they had been forced away from the water, life blood of the town, and sent on a wide diversion into the drier land to the east of the River, before being allowed to set up what the town bureaucracy had chosen to formalise as the Holding Camp.

Mela wondered now how the Immies had got their water in the last stages of their march, if they were kept away from the River. She imagined there must be tributary streams to sustain them. Or perhaps not. She didn't know. She had never thought to ask.

On they walked. Soon enough they came to the camp.

There was no formal boundary to it, Mela saw now, nothing like a fence, or even a boundary rope. It was a scar on the ground, grey on green, with shapeless people sitting among shapeless bundles. Few of them had any shelter, or anything like a tent. Smoke lifted from desultory fires. There was a stink, not quite human – almost animal-like.

The sisters hesitated. It was barely a camp at all, Mela thought, of any name. Just a scar on the ground, and people and their stuff.

And Khem of the river boats came walking out to meet them.



Mela stared in surprise.

Ish, apparently irritated, pointed. ‘*You.*’

‘Me,’ Khem replied, without expression.

Mela saw that Khem wore battered armour of leather and metal plate on her upper body – it looked *very* battered, well worn, and didn’t quite fit her. Under that a uniform of the city’s Guards, bright red over blue, just like Tabor now wore. Otherwise her trousers and muddy boots made it look as if she had walked up straight from the River’s bank.

Khem just stood there.

Mela said, ‘Not playing the usual answer before question thing today, Khem?’

She shrugged. ‘Not much of a place for games, is it?’

Ish said, ‘Father told you we were coming, didn’t he?’

‘Yep.’

‘He told you to meet us at the Holding Camp?’

‘Yep.’

‘Why?’

Khem shrugged. ‘I suppose he trusted me.’

‘Ha! More than he trusts us.’

Khem looked them up and down. ‘Can you blame him? No, it’s not safe out here.’

Almost the answer-before-question trick that time, Mela thought. Habits died hard. She said, ‘Then where is safe?’

Ish said, ‘And what are you doing here anyhow? Working for the city now?’

‘Sort of.’ Khem seemed uncomfortable. ‘Sometimes the Immies will go in for a bit of burglary or robbery or looting. More often city folk will come out here to harass *them*. But the Immies are mostly just families, parents and kids and old folk, trying to live. Just like us. The only difference is they have nowhere *to* live.’

Mela was puzzled. ‘More work here for you than on the River any more, right? So who pays you? If the Immies need to be protected from the city folk—’

‘The Immies pay, of course. Don’t you even know that much? Oh, we get a stipend from the city. But the Immies pay for everything, one way or another.’ She looked at them blankly. ‘Ask your mother. You may as well

come see what you came for. Follow me. Or not. I'm no baby-sitter, and you shouldn't be here. I can't see your Permits. Keep it that way.' She turned and stalked off, at a heavy, not-quick pace. The pace of a woman used to long-distance treks, Mela was able to recognise by now.

The sisters followed, and Ish would have pushed on ahead, closing the gap to the river woman, but Mela held her hand to keep her back.

And they approached the Holding Camp.

It was surrounded by a hinterland of bare, trampled ground.

'No smartcrop here,' Ish said, wondering.

'All been cleared away from around here, long since,' Khem said.

Mela asked, 'Who by?'

'The city, of course.'

'So what do these people eat now?'

Khem eyed her. 'You still don't get it, do you? The city provides a dole for work. Not much of one, and there is not much work. You buy food with the dole. Otherwise you use your savings, or exchange stuff for it. You eat whatever you can pay for.'

'Buy from who?'

'From whoever has food. Procyon traders come out here – the Immigrants aren't allowed into the town. Or they buy it off each other, with whatever they have to sell.'

Mela thought that over. 'Somebody must be getting very, very rich.'

Khem shrugged.

They approached a kind of boundary now, at last, even if it was just a scratch on the ground. Guards patrolled this line, Procyon Guards in their armour and city colours. Within this boundary—

Nothing. No order. Just a bunch of people sitting among heaps of possessions, some in rough-looking temporary huts or tents. Mela saw one woman draw out what looked like a bolt of cloth, showing it to somebody a little less grimy, a potential purchaser maybe. A bolt of cloth would have been a tough thing to carry, Mela thought, no matter how valuable it had once been.

That stink, of unwashed flesh, of lavatories, was stronger now.

Ish just stared. 'What are they doing?'

Khem seemed to suppress a sigh. 'Bargaining. Trying to find something worthwhile to sell for food, amongst the garbage that they've dragged here

from the ruins of their town.'

Ish seemed puzzled. 'Which town?'

Khem looked south, down the length of the River. 'Probably Capella, where the Perimeter is about now. Forty kilometres south of here. Maybe some from the lost towns further south, if they couldn't get into Capella but survived even so, and have been driven on. Or maybe even Rigel, north of Capella, which will be the next to go. The towns go down one by one, like baby birds in a row.'

'Surely some would have been let into Procyon,' Ish said.

'Those who applied early, maybe, and had the right credentials, or money. Not many.' Khem shook her head. 'You just don't get it. Town kids are never *told*. Yes, some would have been allowed in. A few. But all those others – well, walking is better than just lying down and waiting for the Tide, I guess.'

Ish seemed bewildered. 'I suppose people just have to do the best they can.'

And Mela saw again that Ish just didn't understand all this on some deep level. As if it was all some minor inconvenience, easily fixed. *I really will always have to protect her.*

Mela took her hand. 'Home now, kid.'

But as they walked off, Khem took a few steps towards them. 'Mela.' She beckoned.

An instinct prodded Mela. She said to Ish, 'Wait here.'

Ish looked back sulkily. 'What does she want *now*?'

'Nothing, probably. I'll go see.' She ran back the few paces to Khem.

Khem said, 'I wasn't sure whether to tell you. You maybe, not the other one. You ought to know.'

'Know what?'

'I've seen him.'

'Who?'

'Your brother. Tabor, was it? He was pointed out to me. He's known here. Son of the Magistrate. You know how people are.'

'Where?'

Khem hooked a thumb over her shoulder. 'In there. With the rough sort. Doing stuff.' She shrugged. 'Not my place to stop him. Thought you should know.'

‘Doing what stuff?’

Khem hesitated, and drew closer. ‘You know, there’s always trouble in the camp. Low-grade stuff, robbery, violence, sex assaults. Grubby. But it’s folk coming over from Procyon itself, in the dark especially, that are the worst. You see, no matter how poor you are in the city, you can buy whatever you want in the camp. And it will get worse when people get hungrier, more desperate. Sex of any kind you want. There’s gambling. People will play suicide games to get food for their kids. I’ve even seen hunting before. Humans hunting humans. Not here, yet. The dark is the worst. The priests calm things down, sometimes. The Perseids in their green robes.’

‘And Tabor is part of this?’ Mela felt conflicted. She would have wanted to know what Khem was telling her about Tabor, but at the same time resented being told such news about her brother by a comparative stranger. She felt like jabbing back. ‘Why don’t you report him? Report all of it?’

She shrugged. ‘I’m in the Fence Watch too, temporary, paid by the city, remember. At least until I can get back to the River and my proper job. Not my business.’

That complacency made Mela angry. ‘Your precious River. But even the River is wearing out. Pouring off the edge of the world. These people lost their cities. Won’t you lose your River some day?’

Khem eyed her calmly enough.

Then she turned and walked away, back to her station.

When they got back to Procyon, and walked through the cosy, familiar streets in which they had grown up – privileged and protected, Mela was coming to realise – Ish opened up, chatting about the sights they had seen, even gruff Khem.

Mela let her talk. Get it all out of her system before they were dumped back into the increasingly fractious atmosphere of home. Where Mela, unreasonably exhausted, hoped for nothing more than a hot bath, to wash the dust and stink of the desolate Holding Camp out of her hair, her skin, her clothes. If Mother hadn't used up all the hot water in the tank.

But when they got home there was a carriage parked up in the street outside – a grand thing that looked as if it needed a dwarf aurochs or two to pull it, let alone horses ... certainly grander than most you saw in the streets of Procyon now.

Mela wasn't surprised, when they got closer in, to see that the carriage bore the sigil of the City of Sirius, capital of the world – a rather obvious crown of Earths around a bold tower. As if the city were the capital, not just of this Earth, but all of them.

'Wow,' Ish said as they walked up. 'What I would give for a ride in *that!*'

Mela felt faint disgust at such a comment, after such a day. 'Your last mouthful of food?'

Ish looked at her strangely, but, characteristically, turned away and bounded up the steps to the front door, which was unlocked. Once inside the house, Ish ran off to their shared bedroom.

Mela followed more slowly. Sirians in the house could only mean complications for her parents, and so for the twins. She stood in the hall,

listening for voices. Mother was silent upstairs. Father was evidently downstairs in his own study, speaking more calmly over a rustle of paper.

Father first. She walked that way and knocked gently on the door.

The door was briskly opened by a woman, perhaps Mother's age, dressed in a smart black uniform, a Sirian Earth-ring sigil sewn on just below her shoulder. Her hairstyle was unique, jet-black hair half obscuring her face on the right-hand side, her scalp shaven on the left.

There might have been a flash of irritation on her face at the interruption. But the woman smiled, genuinely enough. 'Ah,' she said. 'One of the twins? Ish, is it?'

'Mela. My sister is Ish.'

'How charming. I'm Bel Petro.'

A Sirian name – a famous family, Mela had heard.

'I'm a colleague of your mother's.'

'I guessed that.'

'And you're just in time,' she said.

'For what?'

Mela's father came bustling up behind her. Mela saw that he was wearing his Magistrate's badge of office at his neck. This must be important business, then, if Father was involved too. Even formal.

'We were just about to have some tea. Love, would you mind—'

'No. Of course not. I'll make it.' She genuinely didn't mind. She knew how important her father's work was – to the city, and to the family, especially with a visitor from Sirius.

The Sirian smiled. 'I'll get back to your mother.' Elegantly, she swept upstairs.

Father closed the door to, and, standing in the hall with Mela, wiped his brow with a crumpled handkerchief. 'It's hard going, I don't mind telling you. Not like before.'

'What is?'

'Distributing Permits for the new Immigrants from Capella.'

'It's always been this way. The Immigrants have always come—'

'Not in these numbers. Not from so close. And not from so close to Sirius either, by the way. That's why Bel is here, officially, to contain the Immigrants as far as possible. This is the border of the Hinterland, remember. So the imperials have come to order us around.'

‘But it’s never been *their* problem before, not directly. We’ve never had such a flood before, bypassing the towns, some even pushing into the Hinterland, where they are *not* welcome. It’s said some have already tried to get all the way through to the Provinces themselves. The imperial troops just push them back, but ...’ He wrung his hands together, anxious, stressed. ‘But what are we supposed to do with them? Our imperial rulers can’t seem to see – Bel Petro in there can’t seem to understand that if we have no room, then *we have no room*, not for anybody.’

And so, Mela knew, there was nothing to be done for such outcasts – the excess. Not for the first time it made her shiver to think that in Rigel, and Procyon, and maybe even Sirius itself, decisions were being made, by people like Father, in mundane offices and home studies like this one, decisions that meant life and death for swathes of people.

While she was about to make tea from dried smartcrop leaves.

And only a short walk away was the heap of detritus that was the Immies’ rough Holding Camp, where her own brother, it seemed, was at play among the desperate.

Father’s was a terrible job. But it had to be done. And he was doing it as best as he could, no matter what it cost him.

Without thinking about it, she stepped up to him, wrapped her arms around him, and held him tight. ‘I want to be like you.’

When she let him go, he was half-smiling, tears in his eyes. ‘You are growing up. I’m all right. Go. Go make that tea.’

Raised voices from upstairs.

‘And you’d better take some to your mother.’

After Mela had delivered her father’s tea, Mother responded to her tentative knock with a barked ‘Enter.’

Her mother was alone, it turned out. Bel Petro had commandeered the sisters’ bedroom for her own work.

Mela walked in carefully. When working alone, Mother had a habit of scattering paperwork, files and other precious materials over any available surface – tables, chairs, the floor – and did *not* welcome any disturbance. There was a fold-out bed for visitors, and today even that had been let down and heaped with materials.

Mela saw a corner of the bed that looked feasible for her own load, though, and she gingerly put the tea tray down.

Mother was bent over her papers. She hadn't looked up as Mela entered.

'I brought tea. I've put it on the bed. The tray. Is that all right? If it's in the way I can move it—'

Mother glanced around. 'Oh, just leave the damn tray. Can't you see – can't you see ...' She seemed deflated.

Mela took a cautious step back towards the door, not understanding, fearing temper, a tantrum.

But Mother turned, and seemed surprised to see her backing out. 'Oh, don't go, daughter. Stay.'

Mela didn't understand. She couldn't remember when she had last been called *daughter*. 'To pour the tea?'

'No! No. Oh, just ... Yes. Pour the tea. You brought a spare cup, didn't you? For Bel, I suppose. Pour one for yourself for now.'

There was nothing Mela wanted less. But she poured the tea, handed a cup to Mother and then sat on the floor, for lack of anywhere else, legs crossed.

Mother watched this as if curiously, as if she were seeing Mela for the first time in – well, a long time, Mela thought.

'You aren't comfortable in here, are you?'

Mela didn't know what to say, so she did what she usually did around Mother. She didn't say anything.

'You're actually frightened of me, aren't you?'

Mela stiffened. 'I wouldn't say that.'

'Hmm. Is your sister frightened too? Of me, I mean?'

Mela thought that over. 'Maybe. I don't think so.' She took a breath. 'She is better at ignoring you than I am.'

That made Mother laugh. But that reaction soon faded, leaving a more sombre expression behind.

Mela had always thought her mother beautiful, always well turned out, her hair carefully coiffed. Like a vision of what she, Mela, Ish too, might grow up to become one day. But now Mela saw shadows under her eyes, lines on her forehead, her mouth twisted into a permanent frown. And, she saw now, for all her efforts she would always lack the natural, easy glamour of a Bel Petro.



‘Well, I’m sorry if I make you feel that way,’ Mother said. She seemed to think that over. ‘I think I’m sorry. I suppose I ought to be.’ She looked at Mela. ‘I only ever wanted the best for you, you know. That’s why I worked so hard.’

Mela couldn’t remember a conversation like this between them, ever before. Adult to adult, almost. So she stayed silent. She had an uneasy feeling, though, that there was something badly wrong, to prompt her mother to be like this.

She guessed, ‘Are you tired? Father always says you work too hard.’

Mother snorted. ‘Does he? Thank him for his support, would you? ... Oh, I’m sorry. I don’t mean to say such things. It’s just – yes, I do work hard. For me, for you, for *him*, for the love of the work itself.’ She squeezed a fist. ‘It’s so satisfying, you know? To buy and sell, to clear away clutter, to build anew. To sort things out for people. When I was younger, you know, I used to travel up and down the River to towns even beyond Arcturus, days and days of travel, to see what *I* had helped build.’

‘To see where your money had come from.’

‘Our money,’ Mother corrected. ‘Well, yes. I was like a general visiting old battlefields – or something. But it’s different now.’

Mela nodded cautiously. ‘Everything’s smaller. Arcturus has gone. Capella is going, the Tide—’

‘Yes, yes.’ She slurped her tea. ‘Look, I’ve become an expert at the game. You understand, don’t you? The great game of Perimeter property. Sell high *here*, buy low *there*. Round and round. It’s got tighter all through my lifetime, but I was an expert, like your grandfather before me. I should tell you about him sometime.

‘And it was a game with a point, see. The point being to find us all lodged one day in a chateau in the Heartland Mountains. Maybe in Sirius itself. As far from the Tide as possible, living as well as possible, for as long as possible. *Longer than anybody else*. What else is there to aim for?’ She sighed.

Cautiously Mela prompted, ‘But now—’

‘Now the Tide is so close – the big players from Sirius are involved. Seriously, out here, in the Hinterland, and even further out. Pushing away the Immies, snapping up threatened properties ... Have you met Bel Petro before? She has some official business with your father, but she’s always

been my main agent in Sirius itself. Only met her in person a few times. Now she's *here*.'

*The big players from Sirius.* 'Bigger than us, you mean? Bigger than you?'

Mother seemed to be pulling himself together. 'Bigger, maybe. Not necessarily smarter. I've already proved that.' She grinned, as if relishing some fond memory, a battle won, an opponent downed. She was no longer looking at Mela. 'Yes, I've already proved that. More than once.' She turned back to her desk, pushed some papers aside. 'Hmm.' She found a page, focused on some key paragraph.

Mela might as well have vanished into thin air.

Mela drained her tea, put her and her mother's empty cups on the tray, and backed out of the room with it, letting the door close softly behind her.

And she wondered if she would get to know her mother properly before the world ended.

That was the twenty-second year before the end.

Soon it was the twenty-first year.

And in the twentieth year, the Tide came for Procyon.

John Hackett

c. AD 5 million years

Eleven months out from Sol, after his final waking, John Hackett began to haul in the dark energy scoop that had served him so well across twenty-four subjective years – or five million years external, two and a half million light-years to Andromeda, two and a half million light-years back, depending how you looked at it.

It took time to haul in a flimsy sail wider than Jupiter, and he took that time, allowing *Perseus's* systems to work through their procedures at their own pace.

And his body needed time to recover from the effects of the high-G flotation tank inside which he had been immersed for the last twenty-four years. A long, crushingly dull time, as if he was a prisoner of some ghastly, unending war. A time mostly spent unconscious, relieved only by the brilliance of the few years he had spent alone among the stars of Andromeda. Alone because of the deaths of his crewmates after the first few months.

But in those eleven months he'd had absolutely no contact of any kind from the approaching Solar System, despite the chain of relay beacons the ship had dropped en route, the steady stream of laser-pulse messages he had sent back to try to maintain some kind of continuous contact with the rest of mankind for as long as possible. You'd think that once he'd got back to Sol's neighbourhood of the home galaxy ...

No reply, no acknowledgement.

After all, even without messaging, *they* knew where he had gone and when he was due back. Or they *had* known. Five million years was plenty of time to forget, as you evolved or devolved or whatever the hell. But somebody could be expecting him back, *somebody* ought to be trying to make contact. Some archaeologist, he supposed bleakly. Even some latter-

day SETI scientist looking for faint alien signals in the dark – only to be startled by rediscovering an ancient human artefact.

Instead, silence. While he knew nothing, essentially, of what had transpired back home.

Well, in utter ignorance, it seemed to pay to be cautious. To make a slow approach. This careful strategy would give him time to watch, and observe, and maybe to make a few tentative guesses as to what kind of reception he might expect. Then decisions would have to be made.

‘Just like approaching Andromeda,’ he muttered. ‘A whole new galaxy. Nobody to come out and greet me there either. And we found no other signs of life out there, did we? Intelligent or otherwise, in either galaxy. No gleam of chlorophyll from some sunlit world. No radio signals, or laser beacons suspended in space. No ruined megastructures, no shattered Dyson spheres. Life and intelligence, summary conclusion: evidently both scarce, and transitory.’

‘Has it ever occurred to me that I might be entirely alone? If humanity blew itself out after all – leaving me, the *only* sentience in the Galaxy?’

Actually that had occurred to him only a few years into the mission, only a few light-years from Earth, as *Perseus* had carried him, alone, through the silent stars. About the time he had started talking to himself.

‘Was it something I said?’

By eleven weeks out from Earth the Sun was already by far the brightest star in the sky.

Still no contact. But Hackett kept searching.

The *Perseus* was, had been, a scientific mission. It was well equipped to study, analyse and record the light of the myriad stars of a galaxy larger than the Milky Way. Now the ship’s banks of instruments peered ahead to inspect the light of the star that had birthed its sole passenger.

And the Sun at least looked just fine to Hackett. He was able to measure the intensity of its light, use his spectroscopes to investigate its composition. *Five million years*: it wasn’t much in the life of a star – even for a big beast, comparatively, like the Sun, which was short-lived, comparatively. Hackett knew that smaller stars, red dwarfs – like the nearest star, Proxima Centauri – were much more frugal in their use of their hydrogen fuel, and could expect to outlive fat, bright stars like the Sun by

many orders of magnitude. Even so he hadn't been gone that long; the new Sun looked the same as the old.

'But long enough that Proxima most likely isn't the nearest star any more, dummy,' he admonished himself. 'Interesting question. What is?'

He made a quick all-sky survey, using an array of miniature instruments spread across the dark energy scoop itself, trying to identify the shifting stars by characteristics logged into his databases. The stars swam around the Galaxy's centre in great shoals as their mutual gravity tugged at them, but their relative positions could change, like individual fish moving through a shoal.

Proxima certainly wasn't the nearest star any more, he found; it had given up that distinction not long after his departure, relatively speaking. His systems weren't able to identify the latest unimpressive solar-class star that for now was swimming, briefly, closest.

Five million years: time enough for stars to swarm around and get lost in the crowd, but not enough to age significantly. OK. But what about humanity? *Where is everybody?*

'I'm going to slow further. See what kind of inspection of the planets we can manage before we sail down to Earth's orbit. I'll be flying in reasonably close to Neptune. First encounter ...

'Wish me luck,' he said to nobody.

By the time *Perseus* crossed Neptune's orbit the ship was moving at about three per cent of lightspeed. Decelerating at a steady one gravity, it would take about eleven more days for the ship to drift to a halt at or about Earth's orbit.

Eleven days to Earth.

Oddly, Hackett started to feel self-conscious, after so long alone. After the loss of his crew he had dumped or covered over all the mirrors on the ship, or almost all. Talking to himself was one thing; he had felt it would be truly odd if the only human face he ever saw was his own. Now, though, he uncovered the remaining mirrors and started to look at himself more carefully. Shaved his bristling scalp.

Even though he still didn't know if there would be anybody to admire his looks.

All he could tell from this distance was that Earth was where it ought to be in terms of its orbit around the Sun. It was surprisingly bright, evidently reflecting a lot of sunlight; it had oxygen in its atmosphere at a breathable level – and was emitting zero signals that he was capable of picking up.

'But oxygen implies life,' he muttered as he jogged doggedly on the treadmill. 'Or maybe there's no life, nothing but some kind of huge oxygen-generating plant, gurgling away mindlessly down there.' Sooner than a dead, inert Earth? Maybe.

He wondered how the people of this future age – if any survived – would react to him. He had no idea even what any surviving humans might look like, five million years gone – or their descendants.

'Shut up and jog,' he told himself. 'And look out the window.'

Where Neptune loomed.

Hackett remembered Neptune. He had led humanity's first crewed expedition here. He felt he owned it.

'I remember how beautiful it was,' he said now. 'That pale blue, and the white, streaky clouds. Dim sunlight, of course, but almost like a sibling Earth cast out to the edge of the System ...'

Neptune wasn't beautiful now.

The dominant colour was a brooding crimson glow, like a cooling coal. Some kind of huge storm system swirled around the south pole, a pit of dirty cloud, and Hackett imagined he could see deep into the planet's layers of air, as if peering into a wound.

And the contents of the atmosphere had changed. 'Significant depletions compared to the historic records,' he muttered, reading his instruments' analyses. 'Helium-3. Deuterium. Both useful fusion fuels. Even before I left we were dipping into those blue clouds. This relic has been mined and mined and mined again. There must have been installations in orbit, maybe on the moons.

'Oh. What moons?'

Already the planet was receding.

He turned away. He swiped the images off the monitor and returned to his treadmill.

He was able to obtain only distant images of the other giant worlds, given their remoteness in their orbits at this particular date.

All of them showed signs of the same kind of brutal atmospheric mining he had glimpsed at Neptune. They were all *bruised*, he thought.

So, Saturn had lost its rings.

Conversely Jupiter had collected a bright, extensive debris-ring system of its own. Maybe a relic of the four Galilean moons, of which Io, the innermost, seemed to be missing completely, and the others were all drastically changed, drastically shrunken – robbed, apparently, of their water, which in two cases had been known to host native biospheres – sluggish, enduring, but *life*, distantly related to terrestrial life.

'Mined out, then,' he murmured. 'What, am I surprised? I wonder what else they did, on the way to *this*. Hey. But *they* were *me*. I didn't complain about the space industry that built *Perseus*, this grandiose folly, for me. So. What else did they do?'



He looked, as he sailed in towards the Sun.

For now he kept the instruments away from Earth itself, and that cold gleam he'd dimly glimpsed. Instead he surveyed the rest of the inner Solar System.

The asteroids were gone, he saw, as he sailed through the orbits they had occupied. In their place, a kind of ring system, dust and rubble where the main belt asteroids used to orbit. 'Drained of their water, and other useful stuff. The debris left behind. Same old story ...'

Mars was a dot of rust and vacuum. There was no sign of the thin carbon dioxide atmosphere, nor of the water-ice polar caps, nor indeed of the seasonal dry-ice snowfall that had once made splashes of white at the winter pole every Martian year. Away from that, much of the surface, telescopically, looked scarred. He saw great rectangles of furrowed ground, straight-line features that stretched thousands of kilometres.

'Mined, again,' he said. 'Systematically. Got out all the underground water, right? And the moons are gone too. Easy pickings ... I wonder if they made sure they had preserved any life forms down there ... I guess I know the answer to that.'

Venus was more enigmatic.

Much of the planet's thick blanket of suffocating, heat-trapping air still survived. The probe's radar returned sketchy images of features on the surface: mountains, craters. This meant nothing to Hackett, who had known little of Venus, but he did know it was prone to massive turnovers, global volcanic events, every few million years. He couldn't tell if any such events had come and gone since his departure.

But the probe did return one anomaly: the air was unexpectedly *dry*.

'Of course it's dry. It's Venus! The oceans boiled off aeons ago, when a runaway greenhouse effect ...' Then he checked out the science. 'Oh, right. It says here, *some* water had survived as a fog in a warm, temperate layer in the thick clouds. Kilometres off the ground. Could there have been life in those clouds, maybe related to ours? ... Even if there had been, it looks like it didn't hold up the water miners for long.'

At least Venus had got away more or less intact. Not like Mercury.

The innermost planet had lost a significant portion of its entire mass since the launch of the *Perseus*. And, like Mars, the visible surface was

disfigured by immense workings, characterised by straight-line outlines. The mark of mankind, Hackett was learning.

Well, even by the time Hackett had left the Solar System, the mine workings on Mercury had been extensive. The planet had always been ripe for mining, like a stripped-down Earth, with a heavy iron core easy to reach through a relatively thin rocky mantle – and with the availability of sunlight energy more intense than anywhere else in the System. Mercury had been plundered.

But the probe also saw a peppering of fresh craters, with an apparent age of only a few million years, compared to the billions of the primordial surface.

‘Millions. Yeah. I know what that timescale means. We did it. Humans did it. We ripped half the surface off in mining, and then blew holes in the rest by weaponising asteroids, or chunks of them. Probably. So we did it. Went to war, just as some of us thought, or feared, we would ... Maybe if we were lucky the battle for Mercury was the main event.

‘But we’ve heard nothing from Earth, have we? And we must be pretty visible by now ...’

Still no hails from the mother world.

*Perseus* had been heading on a slowing, straight-line course direct to Earth ever since passing Neptune, decelerated by a scoop-sail the size of a planet. Now the sail’s mode of operation gradually switched over from mining dark energy to letting the force of the gathering sunlight slow it down.

He checked the timing. Three more days to Earth.

He tried to think ahead. To *plan* for an encounter with people, for hearing another human voice after so many years. And also to prepare himself for an alternate future in which no other human was left alive.

It was on the second of those days that, at last, he picked up a signal from Earth.

It came through a laser that targeted his hull, harmlessly. It appeared to contain a simple message, in various codes his systems couldn’t decipher.

Until they did.

*Welcome home.*

*Earth.*

He set the *Perseus* in a high polar orbit, so that as the world turned beneath him it would bring all of its surface into his view, with time.

And he set up a signal transmission regime, including radio frequencies across the spectrum, laser light targeting any likely structure, any evidence of habitation. He kept his dark energy scoop partly open too, set to opacity; he would look like a second Moon, he thought, easily visible to the naked eye.

‘If they still use eyes after five million years,’ he muttered to himself. ‘And maybe you’re lucky they still have a damn Moon at all.’

He had only glanced, telescopically, at Earth’s natural satellite. Much of its face was scarred with the recognisable, brute, rectangular signatures of industry. And that relic terrain itself had been pocked by a new wave of craters.

‘So,’ he muttered. ‘Looks like that damn war didn’t stick to Mercury.’

Even given all of that, however, the changes he saw in the Earth were far more dramatic.

In retrospect he realised that he had spotted the main feature of this new Earth – or an older Earth – from afar, in his first telescopic glimpses. It was *bright*. Reflecting a flood of light. Nothing to do with the minuscule brightening of the Sun, though that would continue to increase, over more millions of years. No, the sunlight was much the same.

But for now the Earth was a ball of ice.

That was an exaggeration, he soon realised. As he passed over the planet and took in the turning world, he saw splashes of brown, blue, even of green in the low latitudes at least. Nothing but ice, however, to the north and the south.

In the south the ice was centred on Antarctica. The polar continent had been shedding its ice in his day, the central, ancient cap surrounded by a fringe of bare rock, and blue sea beyond. Now that ice covering had extended again, reached out over the coastal fringe, spread over the surrounding southern seas, and then devoured some of the land of the more temperate continents – southern Africa, the elegant southern tip of South America. Millions of square kilometres of ocean and land, trapped under the new-old ice.

Hackett peered down when he passed over the frozen coast of South America, seeking signs of life: of penguins, of seals, perhaps of some equivalent of the polar bears of the north, hastily evolving from some South American rodent family. He saw nothing, no movement.

In the north it wasn't so uniform, so simple, but then the geography was more complex.

The Arctic Ocean was iced over, of course. Further south, on the northern continents, life persisted. Looking up from south to north, he thought he saw a sketchy green band of forest that spanned North America – conifers, perhaps – and north of that a belt of sparse, paler green that must be tundra. But north of the tundra he saw only a cold desert, spanning the continent from the Rockies to the Appalachians. That, and ice sheets that stretched up to the pole.

He found the same pattern, the same latitude bands of landscape types, of (presumably) adapted vegetation and ice, around the world, across Europe, Asia.

Glaciers clawed mountain ranges. Ice sheets covered plains.

And it was in the more extreme northern lands that the ice had found its true foothold, with tremendous ice domes towering over the hearts of North America, Asia and Europe. Towering over buried cities too, he supposed, or anyhow foundations and cellars and tunnels and underpasses and cemeteries – whatever had survived before the glaciers came.

As far as he could tell the positions of the continents had changed little – although, thanks to the ice and reduced sea levels, coastlines had extended far out to what had been deep sea bed in his own time; the map of the world had changed significantly. He did think, however, that Europe and Africa might have closed up together a little. He had a vague memory that the

Alps, a young mountain range, had once been a consequence of that slow African drift northwards, the land crumpling between colliding continents.

And so now the Mediterranean, between Africa and Europe, was, visibly, compressed – and dry. Identifiable only from its familiar map shape, if distorted. He saw tremendous mountains rising from the old sea bed, which baffled him briefly – but they had once been islands, he realised, from the Balearics to Corfu. And the floor of this dry ocean gleamed.

‘Shit. A salt lake. The whole damn Med has become a salt lake.’

*... Calling Perseus. Calling Perseus. Your latest transmission not decipherable. Dam? Med? ... Ambriel City calling Perseus ...*

That was what you got when you left your mic open.

‘Ground, *Perseus*.’ He grinned. He had lost his crew. He had lost his past, his world. Maybe he’d even left his soul, even his sanity, out among the star fields of Andromeda.

But in that moment he knew he had come home.

‘Hot dog! Am I glad to hear your voice!’

*Repeat, Perseus?*

‘Sorry. Ignore that. I’ve been alone a long time and have developed a habit of talking to myself. I imagine it will wear off.’

*Ah. I can assure you it will. I went through the same experience – well, comparable.*

Hackett was electrified. ‘You’re a traveller too?’

*Those who – ah, host me are more reticent. More static. Their deepest culture, their historical tradition, is of isolation—*

‘Yeah, yeah. History can wait. At least tell me *your* name.’

*Rava Pogee ...*

He scribbled that down on a bit of smart paper.

*Like you, I was a wanderer in space and time.*

‘Like me, huh. But I’ll bet not from so deep in time.’

*Not quite. That is true. The name of your craft—*

‘Is *Perseus*.’ Hackett had a strange flashback to his pre-departure interview with Denise. He had been asked the meaning of his chosen name then. ‘It’s a mythological name ... You understand that term?’

*Of course. We are communicating through language filters, which have little trouble matching our vocabularies. Though a few terms are obscure.*

*I doubt we share your mythologies. Differences of culture, as you would expect. But one lasting tradition is to welcome strangers. Just as one group took me in. Which was not very long ago, compared to five million years. The people here prefer densely populated enclosures, all but utterly isolated. There are several bands in the low-latitude forests, below the ice line. Others, like my hosts, on the ice caps themselves.*

Descendants of space colonists, Hackett thought immediately. They must be isolated, enclosed colonies, surviving in their shelters on the ice, like all those generations in space. Was he seeing the repopulation of a war-ravaged Earth from space?

‘Listen, Rava Pogee. I’d like to land. Not the whole ship; I have a small planetary lander. Multi-mode. For an atmosphere like Earth’s I would glide in, mostly unpowered.’

*Dumping kinetic energy in friction against the atmosphere? A good first impression.*

Was that dry humour? ‘Correct. Do I have your permission? I have the capability to leave again if—’

*They, we, are wary. This is routine. Visitors from other settlements, even from offworld, do arrive occasionally. The danger of infection with some antique disease, biological or cyber, is a real one.*

‘Where is your hosts’, umm, main settlement?’

They swapped maps and names. Hackett found Pogee’s settlement was built on, or into, the ice dome covering southern Europe. The place was called Ambriel. He thought it was near the site of Paris.

*But you may not land nearby.*

‘Quarantine. I get it. Where, then?’

*You have a free choice, if it is reasonably far from the city.*

He thought it over for one second.

‘Rava Pogee, old buddy, I grew up with stories of pilots from more heroic ages than mine. And I always wanted to fly like Chuck Yeager. Or at least over the same terrain. And where Neil Armstrong, first to the Moon, flew the X-15 rocketplane, and nearly killed himself in the process.’

*But where—*

‘I’m talking about salt flats, my friend. Edwards Air Force Base in California, where Yaeger once flew. Now, down there is the Mediterranean Salt Flats of the Year Five Million: thousands of square kilometres of

natural runway. What a bar story landing on *that* would make. Come get me there ...'

Hackett decided to make his landing in the early morning, local time.

A pilot's trick. Choose a time when the Sun is low, and the shadows cast by any unwelcome obstacles are long. So, evening or morning. And morning is better to maximise the daylight for recovery after any disaster.

Still in orbit, he spent a couple of days on preparation. Time to lock down his ship. Give it instructions to flee somewhere safe if anybody shot at it or tried to board it.

And then, more time to prep his much-loved, much-worked lander. A multi-purpose craft, a fusion-rocket design old long before Hackett had left for Andromeda, it was capable of gliding into an atmosphere like Earth's, or descending on rocket thrust all the way down to an airless world like the Moon. And all it needed to get away again was a few tonnes of water to split for hydrogen propellant.

This particular model was now a veteran of several planetary descents amid the stars of far Andromeda. Hell of a thing, he thought now, inspecting a hull scarred by multiple atmospheric entries, but otherwise as robust a bird as the day it rolled off the assembly line. He ought to send the manufacturer a note. Slip it into the ruins of some ice-flattened city, maybe.

Then, his checks complete, he finally came down into the air of Earth. After five million years away.

He skimmed over the night side, which would once have sparkled with the lights of cities and roads like shining ribbons, and even on the deepest oceans there had been scatters of lights, floating settlements and industrial facilities. Now, nothing but the dark, the shadow of the planet. He knew he himself was creating a trail like a meteor, as he shed his kinetic energy in the air of Earth. Even back in his day such a sight would have been rare,



with fast atmospheric entry banned save for the natural infall of rocks from space, to avert the creation of noxious nitrogen-oxygen compounds in air burned by the ferocious heat of such intrusions.

He flew towards the rising Sun, and came down over the dry Mediterranean, as planned, in the local morning. Those island-mountains cast long shadows over the glistening salt flats, the relic of the dried-out sea. He had debated precise location options with his enigmatic capcom, Rava Pogee. In the end it was decided he would aim to land on the flat, somewhere – so he judged – between the location of Marseilles and the lumpy mountain range that had once been Corsica. A party would come collect him. Rava would be there herself.

That was the plan. But as always a descent from space dwarfed human aspirations. Once he was gliding down through the air, the world lost its curvature, flattened out beneath him. The sea bed became a plain, from a certain height geometrically pure, featureless. That was the salt flat for you. It looked perfect, flawless, though it probably wasn't when you got close to.

He knew he had made the best possible choice of landing site, in the absence of dedicated facilities.

Wheels down. The slightest jolt. A plume of dust rose up behind him, and he was disturbing the world again.

'I'm back!'

But nobody replied.

He had to wait a full day before he was even allowed out of his craft.

By then a bunch of machines had come whizzing out of the air and across the flat.

The lander itself was quickly covered by a kind of self-erecting fabric dome, within which small, ancient-looking machines swarmed and clambered all over his vessel. He was made to pop a hatch so they could taste the air within. Similarly he in turn tested the outside air, using kit designed to analyse the atmospheres of exotic alien worlds, now applied to this aged Earth.

Hackett was frustrated by the delay, all these evident precautions, but he understood the mutual caution. He had seen enough evidence of war during his plunge back into the Solar System – but even without malevolent intent there was always a risk that some disease or virus could be circulating

harmlessly in an immune population, ready to chew up a morsel like Hackett. Or Hackett could be the plague carrier, transporting something lethal to these innocent future folk.

But Pogee assured him she had gone through the same paranoid process long ago, back when they first lifted her out of her own sleep tank.

*They mean us no harm. There have been other time-dilated visitors before, in their long history. We old farts are treasures to them ... Or perhaps antiques ... They cherish our memories, our witnessing of the past.*

*They do know of you already, Hackett, through the reports you sent back, messages still stored in their archives. In the deep past, I suspect you did a great deal to help map this Galaxy and its neighbours ... even if, for millions of years, you fell silent.*

That gladdened Hackett. He hadn't wasted his time entirely, then, after those five million years. 'Most of the time we were out of range, even given the relay nodes we dropped. We did our best. I kept retransmitting all I had on the way back in, but never got a reply ... Well. And you're still here.'

*Well, my ship is not what it was ... I am the only one, though, the only survivor of deep antiquity here now. Or I was, before you came ...*

While the locals worked, he slept through the night, on Earth, for the first time in five million years.

By the second morning the tests had proved clear, the containing canopy removed.

He opened the lander hatch, and descended by a short stair.

His boots gripped the rough surface of old ice.

He cracked his helmet, removed it. The air stung his bare cheeks, and when he took his first lungful the cold seemed to swarm into his body, chilling his lungs. A cold so extreme that the ice under his feet was hard as rock. And yet the air was fresh, clean, he could sense immediately – air that hadn't been recycling through his own damn body for decades.

He looked around, at the huge sky, the infinite plain on which he stood.

Pogee had told him just to speak into the air.

'OK, Rava Pogee, John Hackett of the *Perseus* reporting in. Safely down, not dead yet.' He glanced around again. 'No sign of the welcome party.'

*They have stayed a safe distance from you while further checks are completed. They are on their way. They'll be with you – we'll be with you – in a few hours.*

Hours yet? More time to kill.

He walked around the ship, patting the hull, kicking the sleds on which it had landed. He hadn't been able to make such an inspection, on the ground, since Andromeda.

Then he walked a little further out, away from the ship, circling out from the lander. The salt flat was just that, its dry dust soon coating his lower legs, a plain as featureless and lifeless as he remembered from Edwards. Looking back from a hundred metres or so, the lander was like a toy set on a table top, illuminated by that bright sunlight. It was the only human artefact he could see. In the distance were the lumpy mountains that had once been islands, when this spot had been deep under an ocean.

No bird song, he realised now. No life he could see save for himself. He vaguely remembered that life had once persisted in the top layers of Antarctic ice, bugs in drops of water heated by sunlight.

He didn't feel afraid. Not at all. Just a little lost. He spoke into the air.

'What was your Earth like, Rava? Hell, I don't even know what time period you came from.'

*Oh, just a few centuries after yours.*

'Really?'

*It oughtn't be a surprise. Ours were the most expansive generations as far as solar space goes – and it could only happen once, given we used up all the accessible resources. The gold rush years, you might call it. I looked up some of your cultural referents—*

'Thanks.'

*All the brakes were off, and we ripped through the Solar System like we had ripped through Earth, a few centuries before. I got disgustingly rich. My big mistake was to buy the presidency of Cloud Venus. Well, I was ousted when the trace Venusian cloud-water ran out, and everything fell apart, and the First War of the Planets started in earnest. Ironically I was framed, as opposed to being caught out for the actual corruption I had committed.*

*So I fled, to an ice-garden reserve I had set up on one of Pluto's moons. Put myself into storage. I always figured that the expansion wave would*

never reach that far – and I was right about that – and so when the great crash came I'd be able to re-emerge and buy up everything left. Using Venus-water deuterium lodes I'd cached, you see. People always need fuel.

But I got it wrong. The crash came, but the mechanisms I had put in place to revive me failed, and I just slept my dreamless sleep, out in the Kuiper Belt ...

'For five million years? Seriously?'

Well, how else do you think I got here?

'We have cryogenic beds. We used them on *Perseus*. But their reliability was always lousy. Good for subjective decades, no more. But my journey was compressed by lightspeed, time dilation ...'

We'd gone beyond that. I take no credit for it. Looking it up ... Yes, a few centuries after you, or millennia maybe, we adapted a kind of matter-printer tech. I was put into cryosleep, while the matter printers repaired the slow degradation of my body. Essentially. It's a lot more complicated than that. And the printers had backup printers to repair their failures. It wouldn't last for ever, but near enough.

If my handful of allies had come get me as we had planned ... Well. But I made it through, almost five million years, until I was finally found. I never planned to stay under so long. I had set the sleep for a thousand years; it was a round-number pre-set, and I figured that was enough as a worst case.

So I was woken, and found myself in this burned-out Solar System. The people who took me in looked like me, still. Five million years is a long time, an evolutionary time. But everything had sort of – stabilised. Something to do with technology, I think. Intelligence stops evolution. Or undirected evolution anyhow.

'And now, here you are, centuries on? Or thousands of years on—?'

Every so often they put me back in the printer bank. Or I choose to go myself. More often the latter, actually. Why not? What else have I to do, save turn to the back of the book and see how the story turns out? Do you get that metaphor?

'I think so—'

And I'm not alone. There are a handful more sleepers, discovered around the world – around the Solar System. One was brought out to orient me on my first waking, as I have been assigned to you. Otherwise, I've only

*had a couple of encounters with the others. They keep us apart. In different habitats. Even different time zones.*

*'Why separate us?'*

*Wouldn't you? This is a stable world, Perseus. A stable Solar System. Has been for megayears. And we come from a dangerous past, preserved by the very tech that enabled us to rip up worlds and hurl the rubble at each others' heads. So they're cautious.*

*They watch the sky, you see, the new sky of this latter-day Earth. They saw you coming a long, long way out, my friend. Remember that. Take it as a token of goodwill. They let you land, but you're not back home. This is their home now. And you're visiting on sufferance.*

*'As are you.'*

*As am I.*

*And now, at last, Hackett saw a plume approaching from the far northern horizon. A plume of dust and ice particles, catching the light of the rising Sun.*

Long before the caravan of future types reached him, he ordered the lander to take off, to dock with the main scoopship in orbit and wait for his command to return, to come get him. He stood well back – half a kilometre away – and watched the lander rise up on an all but invisible plume of hot hydrogen, and then flare up into the sky. It left a trace, he saw, a contrail in the chill air.

He had kept a kit bag with him, with whatever he had thought he might need for a few days away from the lander. A few essential medical bits. His razor. His magic non-wearing-out toothbrush, a last gift from Denise Libby before he launched, and lost her for ever. An all-purpose knife, the only item that might be construed as a weapon.

Clean underwear.

Comically mundane stopover preparations after five million years away. A reminder that he was still human. And a signal device, that could summon the lander.

He turned and waited for his hosts.

Their vehicle, riding over the salt flat, reminded him of nothing so much as a hovercraft: a big hull shaped like an upturned saucer, with a skirt of some kind of fabric wrapped around and trailing on the ground. It got to about fifty metres from him, then settled to the ground.

He stood still and watched.

Big gull-wing doors lifted up around the vehicle, and ramps rolled down to the salt plain. Out came what looked to Hackett like a fancy wheelchair, itself apparently riding on a cushion of air. One passenger, only their top half visible, the lower half entirely enclosed in the machine.

And after that ... Children.

That was what they looked like. Ranks of four children abreast – two, three rows emerging in the end, and following the hover chair as it rolled over the salt plain towards him. It was hard to gauge their height, but none more than a metre and a half tall, maybe. They all wore what looked from a distance like white smocks, loose white trousers, some kind of boots, all heavy-looking – all evidently lined against the cold.

Hackett had his bag in his hands; he set it down now, on the ground, and made sure his empty gloved hands were visible.

The hover chair came to a halt a few paces from Hackett. The ‘children’ slowed behind the chair, breaking their formation a little. They stared at him curiously. Now they were up close he saw the signs of ageing in their faces, if not their bodies. One, her hood pushed back, actually had grey hair, though shaven short. Many had elaborate tattoos on their faces, mostly swirls and loops around the eye sockets. All different in detail, as far as he could tell.

As he looked more closely, as he got used to their overwhelming presence, he saw more variety: tall, short (relatively), fat, thin. A variety of skin tones, facial forms. Hair light or dark, curled or straight – or absent altogether. Surprising variation, given this was a single population evidently far from any neighbours, and an ancient one. Cultural factors had preserved the variety, maybe.

And in that chair, a stiff body, tilted at a slight angle. Hands invisible inside the machine. A shaven head, an ageless face – darker than Hackett’s own complexion, he thought. And a smile that revealed a row of too perfect teeth.

‘John Hackett,’ the figure said now.

‘Rava Pogee?’

‘Welcome to Earth. I take it you can understand me?’

Her lip movements didn’t match the words she spoke. ‘You sound as if you’re speaking twenty-second-century English.’

Pogee sighed. ‘And you sound like third millennium Venusian. The translation suite is not my technology. I wish it were. One of the miracles owned by these little guys, but inherited from a civilisation long gone, I think. As is much of their tech.’ She tapped one over-large earpiece. ‘I wear a hearing device. Another device translates my words for you, and I don’t know how *that* works. Our hosts have implants. Even so they ask me to

speak to you now, as I have done during the process of your approach and landing. They think it might be easier for you. More reassuring, to have some continuity amid the unfamiliar.'

'Thanks for your help. I mean it. I guess it was a slow day in the year five million. "Little guys", though?'

She looked at him knowingly. 'They aren't children. Forgive my language. They descend from space colonists. As does everybody alive on Earth today. Earth was repopulated after – well, which war it was doesn't matter. Repopulated after many, many generations of adaptations to space habitats, to confinement to small islands, effectively. Their technology is essentially perfect, given its required functions. But evolution has worked too, you see.'

Faint memories surfaced in Hackett's mind. 'Islands. Dwarfing effects?' Once you'd had dwarfed mammoths on islands off the coasts of the continents. Now – across millennia, or thousands of millennia – dwarfed humans returning from isolated space colonies?

'That's it. Stranded populations on islands have always evolved smaller forms. The more individuals you can produce, the better the genetic health as a whole – even if they are *small* individuals.' She grinned. 'But they are not children. Don't underestimate them. Although I always do. For instance they know that you stand as you do because you want to show you have no weapon. The open hands?'

'Well, actually—'

'We knew about the knife.'

Now one of the 'children' had stepped forward, a young-looking woman. Her translated voice was a rich contralto. He wondered if the very timbre of that voice was processed.

'I—'

'We understand your posture. Your passive stance. You wait for us, you do not threaten by advancing. We are prepared to accept the knife as a tool, not a weapon.'

'Thank you. Umm, my name is—'

'John Hackett. We know. My name is Icsoba.'

He repeated that, trying to drum it into his memory.

Pogee murmured, 'Actually her true "name" is a song memorialising a hundred generations of ancestors.'



Icsoba said, ‘John Hackett. As Pogee said, my name reflects my ancestry. Does yours?’

He looked down on her; it was disconcerting to remember she was an adult.

‘Actually ... no. Not very far back. My ancestors were transported as slaves, from one continent to another. Later generations were given names that reflected their owners, not our own deep ancestry. When emancipation came, my family used the owners’ name for continuity of records. We could use such names to trace back to the time of the liberation at least, if not from the transportation. I was born on yet another continent. I never learned my family’s ancestral names.’

‘That is ... shocking. Remarkable.’ She twisted her face. ‘Savage.’

‘So it seemed to us. Even though I suspect my own time, and Rava’s here, would seem savage to you. But, look, I hoped to get us off to a good start—’

She said calmly, ‘We would have been more impressed if you had not brought a tool that could be used as a weapon into our very first conversation. While also sending your landing craft into orbit, out of harm’s way.’

Before her calm sternness, Hackett actually felt his face redden.

Pogee laughed. ‘Don’t feel too badly. I still trip up sometimes. You see, you and I come from mankind’s ages of war. These people are different. You don’t survive countless generations in isolated off-Earth habitats without having the use of weapons bred out of you. Also without trusting people.’ She glanced at his bag. ‘I see you’re packed,’ she said dryly. ‘Ready to come visit Ambriel City?’

The hovercraft vehicle had what felt an unconventional layout to Hackett. There was no pilot or engineer station up front, though that wouldn’t have been a surprise in his own age; the *Perseus* shuttle didn’t need a human pilot. But there were none of the rows of passenger seats he would have expected. Instead there were cosy little huddles of three, four, five chairs together, facing each other, though the seats near the big windows were arranged so everybody got to see out. Some reflection of local social norms, he supposed. A changed humanity. More sociable, less territorial.

Pogee had led the way aboard in her automated chair, which easily climbed a shallow ramp. Now she took Hackett to one of the seat clusters. Nobody else approached save the spokesperson, Icsoba. The other locals sat huddled in little groups, talking softly or not, occasionally laughing.

‘Laughing at me,’ Hackett murmured. ‘The clumsy caveman?’

Pogee frowned. ‘The translation software just about copes with that. I don’t think so. It’s just that they are all probably far more interested in each other than in you. Even, more interested in each other’s *reaction* to you than in you yourself. They are intensely social. No doubt a survival trait.’

Hackett felt the craft lift, smoothly, and then it accelerated away, just as smoothly. A glance out of the window showed they were heading roughly north. Just skimming over the salt flat.

Icsoba noticed him looking. ‘You are curious as to where we take you.’ Her voice was very soft, calm. ‘Are you concerned? We can bring you back to this very spot if—’

‘No, no,’ Hackett said hastily. ‘I trust you.’ *What choice do I have? And I can always bring down the shuttle wherever they take me.*

‘We wish to show you our home.’

‘I ... thank you.’

Pogee followed this exchange thoughtfully. ‘You don’t have a map facility.’

‘A map?’

She leaned forward and gently tapped his forehead with a fingertip. ‘In there.’

He jerked back.

She looked dismayed. ‘Oh. I’m sorry.’

‘No, no,’ he said. ‘It’s just – I’ve been alone for so long. Nobody has touched me since I lost my crew members, en route to Andromeda. Five million years, or twenty-some years ago depending on your point of view. What were you saying about maps?’

‘I was trying to give you some orientation. On where we are, and where we are heading.’ She glanced at Icsoba.

Icsoba, taking the hint, passed her hand over a section of wall.

Up came a kind of map – more a geographical relief chart, he saw. No cities or national boundaries.

Icsoba asked, ‘Can you understand this? Can you see where we are?’

‘Well, I know where I came down ...’

Hackett, in the course of his astronaut training, had memorised the geography of Earth, as seen from space. It always helped to know where you came down in case of an emergency landing. Now, he saw, the shape of the world hereabouts hadn’t changed that much. This was indeed south-west Europe – though much transformed. The western Mediterranean, now a barren salt flat, had shrunk back from its old shore. But still Hackett recognised the bloated coastlines of Spain, France, Italy.

He tapped the map. ‘I think we are about *here*. Heading north across the salt flat, heading for the higher ground about *here*.’ He moved his finger to the mouth of a big glaciated river valley. ‘It’s changed a lot. But I think that’s where a city called Marseilles used to be. And *this* was the mouth of the valley of a major river called the Rhône.’

Icsoba smiled at Hackett – a wide, dazzling smile that drew him in immediately. ‘So we have already learned from you – or at last we can confirm what we thought we knew, a fragment or two of fact, a list of antique names ...’

*Antique.*

He saw now, looking closely, how her face was – different. Her brow seemed low, her jaw wide, her chin non-existent. Different from the norms he remembered, but not drastically so. But it didn’t look like five million years’ difference either. He tried to remember how old the human genus had been, looking back from his time. Two, three million years? And now, five million years gone, and so little divergence ... As Rava had suggested, maybe intelligence somehow froze physical evolution, to some extent.

Icsoba returned his stare frankly. Then she pointed at the map. ‘So we will leave the salt flat, travel up this valley, pass your lost city—’

‘Marseilles.’

‘There we will enter woodland, then the tundra. Some distance further we will head for *this* location, which is on the ice cap. There we have built our city, which we call Ambriel.’

He stared at the map. It did look like the region of Paris—

Suddenly the carriage went dark.

He heard squeals of delight.

Hackett found himself gripping his seat. Not dark, entirely, he realised, his eyes adjusting. Dark green shadow, beyond the windows.

Suddenly he was in a forest. Nearby trees flickered past his window, with grander, more stately growths beyond – growing greater, he supposed, away from this travel track, where any growth would be disturbed.

He hadn't seen a tree in five million years.

Everybody was watching him. Pogee, Icsoba, the others in their own little huddles.

'Sorry. That was a shock. Did I yell?'

Pogee was grinning. 'You might as well have. That wasn't fair. Maybe I should have warned you. This transport is faster than you think, and the tracks are well laid out, the way maintained. No chance of a collision. But the forest is actually pretty dense.'

Still everybody was looking. He felt like a teacher making a fool of himself on some school outing.

'Tell me something,' he said, snapping to cover the embarrassment. 'Why the hell are all these others on this jaunt? Only you and Icsoba are talking to me. Why the mob?'

'Well, they do everything in mobs. Everything together. So you don't meet one or two, you meet five or fifteen, all at once. To them, doing a solo journey across years, as we both did, is inconceivable.'

'That's what five million years of space-habitat enclosure will do to you. So what have they lost that we had?'

Icsoba just looked back at him. 'Or perhaps the question is, what have we found that you had lost?'

Embarrassed, avoiding eye contact with Pogee, he turned away and distracted himself by looking out at the forest, rushing by. 'Are those *oaks*?'

Soon the forest seemed to be thinning out, to reveal what looked like spruce or pine, growing in more open country.

He tried to figure it in his head, based on his observations from orbit, his sketchy, looked-up references to glacial Earths of the past. You had this huge distortion of the climatic zones compared to the interglacial world he had left behind. The ice, on which nothing could live, pushed zones of vegetation south, species of trees and plants surviving by seeding at lower and lower latitudes. So in southern Europe a temperate oak forest had been

pushed down to a strip north of the salt sea coastline, and north of that an Arctic flora of conifers and birch. And north of *that*—

The speeding vehicle suddenly burst into the light.

This was open country. The forest fell away, save for scattered clumps, and solitary, odd-looking trees, like willows, bent to the ground. The earth itself was covered in a kind of coarse grass, it looked like. Here and there immense boulders sat, half covered by lichen, rocks perhaps brought down by some excursion of the ice. Some of them were cracked, presumably by the cold, by invasions of water seeps that then froze and expanded.

He felt oddly excited. He grinned at his companions. ‘The tundra, right? You’d think I’d have the tourist bug knocked out of me by now.’

Pogee smiled back at him, her head held at that odd angle. ‘I barely understand that once again, but I get the message. It’s better in the summer, actually. There are meltwater lakes over the permanently frozen ground. Cotton grass, heather, small flowers – a riot of colour. And swarms of insects, and swarms of migratory birds that feed on *them*.’

‘And so do I understand,’ Icsoba said. ‘But if you are so excited by trees and rock – look over there.’ She pointed.

He looked. And saw cattle.

Or he thought they were cattle, at first glance.

They walked like cattle, big, shaggy cattle – *very* big – with massive bodies, thick legs, orange-brown hair or fur. The males displayed robust-looking, curling horns. He saw an infant trotting at the feet of the adults, almost playfully, and it seemed impossible that it wasn’t getting stepped on.

Icsoba was watching his reaction. Now she pointed again. ‘And *there*.’

A different herd, quite far away across the tundra. These might have been horses, graceful, slender, nervous creatures, with pale grey coats, and oddly long ears folded back.

They startled suddenly. The herd scattered, running remarkably quickly, the young following their parents as best they could.

And now he made out what had alarmed them: a predator, low slung, with powerful hind legs and jaws, dashing and darting around its potential prey. A biped. It looked to Hackett like a movie dinosaur. But feathered, and with stubby wings. Some kind of flightless bird?

The little scene passed out of his view.

He leaned back, stunned, bewildered. ‘Cattle? Horses? Birds, right?’

Pogee smiled back at him. ‘You and I must reconcile our vocabularies. As best I understand you – no, none of those creatures are quite as you knew them. Most species did not survive the Sapiens Extinction Event. As my generation called it.’

‘The mass extinction induced by humanity.’

‘When the human tide receded, an empty world was left behind, with ecological roles to fill. All that survived of the former natural world was what humans had wanted to keep – such as crop plants, or meat animals like cattle, or useful animals like horses – and creatures that managed to evade the end despite all we could do to get rid of them. Pests, parasites. The birds prospered, especially flightless birds. Some grew huge—’

‘Taking the roles of vanished predators. Like wolves.’

She smiled. ‘And now, five million years on—’

‘Oh. I see. Domesticated cattle evolved into big browsers. Like the extinct megafauna.’

Pogee said, ‘I think some of the cattle were actually retro-engineered, back to ancestral forms. More appropriate to call these beasts aurochs, perhaps.’

‘We study this,’ Icsoba said. ‘But we do not interfere. Few creatures seek to live on the ice cap, as we do. Some birds at the fringes. In the ocean, some creatures survived. Many fish. And we have evidence that more long-lived species of cephalopods are beginning to build a tool-making civilisation of their own. All under the sea.’

‘Smart octopuses?’

‘Something like that,’ Pogee said. ‘Quite a sight.’

Icsoba said, ‘We ... our ancestors ... gave the world back. Gave it back to the creatures who survived the Sapiens Extinction. We will reach the edge of the ice soon.’ She smiled. ‘Before then, there is one more sight that may interest you.’

It turned out to be the ruin of a city.

He thought, from his partially remembered geography, that it had once been Lyon.

The city had been all but erased above ground. Here and there he could see reefs of brick and concrete, cleft and cracked. Glimpsed deep foundations, cellars, pipes and drains, cable ducts sticking out of the dirt.

Pogee gently told him that it wasn't all like this. When the abandonment by mankind came, the architecture was left to take its chances in the elements. Whole high-altitude cities – like Denver, he imagined – had been eroded away, but lower-lying communities, even those built on flood plains, could be preserved. Shanghai, Amsterdam, Venice, New Orleans: the floods that had once threatened such places had finally preserved them in frozen mud.

As they moved north of the city, past its rough perimeter, he saw more traces: what must once have been embankments for roads or rail tracks, carved through bedrock, the rock cuttings surviving, the tracks themselves lost. And in one place he saw the wreck of a huge dam, a relic of a later age than his, an age of changed geography and river courses.

Just for a moment, he felt lost in the present. Longing for the past, just for a day, an hour.

But Icsoba tapped his shoulder, and pointed north.

Where he saw the bone gleam of ice.

They changed vehicles at the mouth of another river valley.

A valley now choked by a glacier, a river of dirty ice with its stately flow marked out by streamlines of trapped, transported debris. Given it was an entirely static scene, Hackett had an immediate sense of motion, of power. But this was power that had worked itself out over hundreds or thousands of years, timescales before which humans were mayflies ...

Well, maybe. But *he* had spanned millions of years, and might once have walked this landscape long before this valley, gouged out by ice, even existed. Some mayfly, he thought.

While he took in the sights, his hosts were abandoning the hovercraft, and were busy readying the transports that would, evidently, carry them further north. To Hackett's untrained eyes these looked like hefty skidoos, roomy-looking cabins sitting on skis, with what looked like caterpillar tracks beneath, presumably to drag at the ice.

Nothing about this was surprising to him. It seemed oddly *old-fashioned*. Maybe the environment dictated an inevitable form of technological response.

Within, the skidoos were cramped but decently heated, to Hackett's relief. He was able to loosen his clothing at the neck, push back his

insulated inner hood. It seemed that this time he was to ride in a vehicle empty save for Icsoba and Pogee, and that was presumably by design. He could see the logic, the caution. He doubted that in such an evidently advanced society the wild man from the past would pose any kind of physical or infection threat. But you never knew what crazy, destabilising ideas from the decadent, warlike past he might pass on, if unsupervised. So sit him with somebody incorruptible.

After a final brief delay, the vehicle moved off with no sound save a hiss of skis, a distant thrum that might be a caterpillar track clawing at the snow. Nobody was at the controls – and Hackett wasn't particularly surprised.

He watched the world through the big windows. The ice was far from featureless. Even when no ground features broke the surface, he saw what looked like waves, frozen waves on a frozen sea, metres high – windblown features, surely.

'We ride slowly,' Icsoba said. 'For safety reasons. There can be hazards in the ice itself: holes, crevasses, snow bridges which look intact but ... Any system can be fooled by such features. We also take time because we will reach a considerable altitude.'

'Yeah,' Hackett said, dredging up stray Ice Age facts. 'These big continental ice domes can be kilometres thick, can't they?' He turned to Rava. 'I thought the Sun was getting hotter. By now, hotter than in my day, though not by much. So why the ice now?'

'I'm no expert. I think it's to do with the configuration of the continents. Add in the dipping and nodding of the planet's spin axis ...' She shrugged. 'It is what it is. This glaciation was probably predicted back in your time, if you care to look it up when you return to your ship.'

The conversation dwindled after that. The ride was smooth, calm. So was the atmosphere aboard.

Hackett found he trusted these people. To a degree. Somehow he suspected both Pogee and Icsoba had agendas of some kind – well, people always did – but what those might be, and how they might affect *him*, he had no idea, not yet. That could wait ...

Earth's gravity pulled at him, somehow a more smothering embrace than the fake gravity generated by the drive acceleration aboard *Perseus* ...

Pogee woke him just after dawn.



Now he saw the Sun hanging over the eastern horizon, a brilliant glare – with two mirror images, one to either side, arranged on that horizon in a neat symmetrical display.

‘Sun dogs,’ Pogee murmured. ‘I checked the vocab banks for that term. The light of the Sun—’

‘—is scattered by ice crystals in the air.’

‘And look over there.’ She pointed west.

Where a spacecraft lay broken.

He pressed his face to a heated window to see more. He could immediately make out the layout, a classic spine shape, with a fat engine pod at one end – a clenched fist of technology – and a more sculpted module at the other. A crew module, a cargo pod? That elegant spine was broken in two, the sections separated. He saw what looked like the remains of ripped-open fuel pods spilling out along the length of the wreck – and he glimpsed, at an awkward angle, sheets of silver and black the size of sports fields. Radiators, probably, designed to dump the waste heat of some kind of reactor core.

‘Could date from long after your time or mine,’ Pogee said. ‘Such designs persisted for millennia. But such falls are rare now. Five million years, Hackett.’

Icsoba said, ‘Not much left to fall. This must be fairly recent, however. Fresh snow falls sparsely here. In time the ice will cover it over. The fall was disturbingly close to our city, though. We would have pushed it away if necessary.’

The wrecked spacecraft looked like an abandoned movie prop to Hackett. An intrusion of old dreams.

He was given water and food. The food tasted like the high-protein ration bars he had been consuming for five million years aboard the *Perseus*. It turned out that, in their wary way, his hosts had copied samples of the ration bars they had found in his kit.

‘Home from home,’ he murmured, munching reluctantly.

Another hour, and the journey was over.

Ambriel City, seen from the outside, was a huge, all but featureless, flattened dome. It was more like approaching a shallow hill than any construction of Hackett's own time.

Further out he saw that the ground around the dome was covered by sheets of some black, reflective material. There must have been square kilometres of it. To Hackett, it looked like spacecraft radiator panelling, a dump for waste heat – like the panels he had seen attached to that movie-prop wreck. And that was probably what this was, the relic of the energy used by the colony's inhabitants – whatever source *that* came from – a high-entropy waste finally dumped into the cold sky.

As the skidoo convoy slowly approached, he glanced around the exterior quickly, while he had the chance, before being taken into the belly of that big structure. Trying to orient himself. Where domed roof met icy ground he saw irregularities that looked like doorways, some of them vast, presumably to allow the passage of vehicles and supplies. A little further out he saw what looked like vehicle parks, and – perhaps – sprawling industrial facilities.

Eventually the skidoo caravan clambered off the ice and followed what looked like a raised, made-up road surface that led up to one of those entrances. The way in, then.

'I wonder how they keep the snow off,' he murmured.

'Well, there isn't much fresh snow, year on year. They deal with it with an economy of energy,' Rava Pogee said. 'As they do everything. I went through this, the whole visitor from the past thing. You'll see. I'll give you one tip, though. I've said it before. Think in terms of a grounded space habitat, rather than a building that's grown out of the Earth. It will all make more sense then ... It's larger than it looks. The dome. Fifty kilometres in

diameter, the floor ten metres below ground level – as a mean; some sections are deeper, and there are subfloor facilities. Including access to geothermal heat, which is crucial to the design.’

‘Geothermal heat?’ The heat Earth had been releasing since its formation, mostly through the decay of trapped radioactive elements.

Pogee was grinning. ‘I knew that would get you. The main power source.’

‘Seriously? I’ve just flown back from Andromeda. And these guys are living off geothermal heat? How long for? Five million years? Like some eyeless fish around a black smoker on the ocean floor, when the sunlight is just beating down outside?’

Pogee’s grin faded, and she shrugged. ‘I won’t endorse your snobbery. That eyeless fish and its descendants probably showed up long before us, are probably still down there under some ice-covered ocean, and will probably still be around when we’re long gone.’

Despite the translation technology, Icsoba seemed to have trouble keeping up with the conversation.

She said now, ‘We used sunlight energy, which is abundant, to create this cavity. This was long ago, in my ancestors’ time. But otherwise we choose to live off the gift of the Earth itself. This is the design,’ she said curtly, and looked away.

Hackett glanced at Pogee. ‘I’m giving offence, aren’t I?’

She grinned. ‘They’re proud of what they built, of how they live. They are very well aware of their culture’s antiquity. It seems normal to them. And you *must* see that stasis, more or less, is the way to longevity. A lesson *my* generation needed to learn, us old ones. You have to be frugal; otherwise resources run out quickly or slowly, and you crash and burn.’

‘Geothermal heat, though ...’

‘Earth sustains them. And that dribble of heat, you know, will long outlast the sunlight ...’

As they had spoken, the convoy of skidoos had steadily approached that nearby entrance, a gaping, dark hole beckoning them in. Hackett had spent subjective decades in free space – or anyhow in small hab modules, adrift in empty infinity. Now here he was about to be swallowed.

Pogee said, ‘I’m frugal too. I still sleep away the ages. Mostly. I get them to wake me every decade or so, or when something interesting comes

along.'

'Such as?'

'Such as you, Perseus.'

The skidoo caravan slid into the shadow of the dome entrance, losing the crisp wintry daylight. When the vehicle opened up, Icsoba led the way out.

Hackett stood, and emerged into a cavernous building. He was standing on a kind of wide ledge, overlooking a pit, full of noise, light, structures, and swarming child-people.

And, also, children.

All turning to stare up at him.

He stood there, flanked by Pogee and Icsoba.

‘You are safe,’ Icsoba said. And she took Hackett’s hand.

He flinched away from the contact.

‘Take it easy,’ Pogee said. ‘It’s just their way.’

‘I ... yeah. I’m sorry, it’s just that after five million years ...’

Icsoba, looking puzzled, concerned, held out her hand again. The touch of her warm flesh was like an electric shock, again. But this time he stuck with it.

And he looked around at the rest.

At least nobody rushed him. The adults mostly seemed to approach no closer than an invisible perimeter maybe twenty metres from Hackett. It was the children who crossed that line and came nearer. One or two adults followed. They all wore coveralls, substantial-looking, even the kids, he imagined as a basic protection against the external cold in case of any leakage or failure.

Icsoba said, ‘You must understand that we don’t get too many visitors here. We aren’t too sure how to behave. But people are proud of their world, here, proud of the way they are carrying out their mission.’

Hackett frowned. ‘What mission?’

Pogee murmured, ‘You’re still not getting it. Think space habitat. Or, better yet, generation starship. Their mission is to maintain the ship over the centuries, the millennia. Following the rules, not eating out the food supply, not having so many babies the hull bursts open – or so *few* that in the next generation there’s not enough people to manage the engines and fix the air conditioning. Open your mind. You travelled across an epic expanse of space. These people have travelled through an equally epic interval of time. Don’t knock it.’ She gestured at one of the children. *Here’s the point.*

He guessed she was around five – a miniature Icsoba, cute as a button – and she held the hand of an adult, a male, who came up to Hackett’s chest. The kid smiled shyly. He had to smile back.

‘John Hackett, this is my brother,’ Icsoba said. ‘His name is Enson. He is younger than me.’

Enson smiled at Hackett. ‘Welcome, John Hackett. Strictly, Icsoba is my half-sister. And this is my daughter Agna. She is not my only child; she has one half-brother.’

‘That is correct,’ Icsoba said. ‘Half-sister. I should have been more precise.’

Hackett had to suppress a laugh. These toy people seemed comically pompous. He knew it was a very unworthy reaction.

Pogee murmured, ‘Swallow the scorn. Concentrate on what they’re saying. Think. Why half-siblings?’

‘Oh. Planned reproduction? Making sure there’s no inbreeding in a closed community.’

‘*Generation starship rules,*’ Icsoba said. ‘As we have heard Rava call them. The children grow up with them.’ She smiled and ruffled Agna’s hair, making her smile. ‘I know from my encounter with Rava Pogee that we are unusual among human cultures, to be able to manage our numbers in such a way, for so long, in an enclosed environment. Unusual historically.’

‘Unusual,’ Pogee murmured, ‘because all the others died out.’

Hackett nodded. ‘OK. I’m officially impressed.’ He glanced around. ‘How many people are there?’

Enson leapt on that. ‘Two to power twelve.’

Hackett’s mental arithmetic was just about up to that. ‘About four thousand?’

‘And a healthy margin under the maximum capacity of five thousand or so,’ Pogee said.

Enson grinned. ‘You are interested in our engineering. Please. Let me show you how we live. It would be my honour.’

And little Agna tugged at his hand. ‘Come and see, come and see.’

Icsoba smiled and nodded. ‘Please.’

Hackett glanced a little helplessly at Pogee.

She shrugged. ‘I’ll stay with you. Look. As you’ll have gathered, visitors are few and far between. There are other settlements surviving on Earth, in

the Solar System. All as reclusive as this lot ...’

‘How many on Earth?’

‘About a hundred million people. Respectable enough ...’

‘Come on,’ said little Agna.

And so on he came, with Agna, Enson, Pogee, and a small comet-tail of curious observers – not all of them children.

The dome above was so shallow it looked like a flat roof overhead, and the main floor was about ten metres beneath the outside surface level, as Pogee had said. Around the periphery he saw stairs, open elevator platforms, what looked like escalators, to get down from the ice level to that floor.

And as he descended one of those escalators, down to that lower floor – looking past the crowding people now – he found himself looking over a park-like vista, with green spaces interspersed by low, flat buildings, a network of paths or roads connecting them. The road layout seemed an interesting tangle, nearby anyhow. Like something that had evolved rather than been planned. Maybe after enough time there was no real difference.

When he looked further out, he realised he couldn’t see into the far distance. Past a certain point the detail merged into a crowded horizon, under that roof – awe-inspiring, once you were under it.

They walked off the escalator, and on to a green area.

‘This is what we eat,’ said little Agna. She ran ahead.

Hackett saw what looked to him like an experimental agricultural plot, low green plants carpeting what looked like, smelled like, rich earth, under banks of artificial light. He wondered if descendants of earthworms were tunnelling through it as he watched, genetically engineered or otherwise.

Little Agna knelt down on the ground, reached over, plucked a few leaves, and popped them in her mouth. She looked up at Hackett, and held up a handful. ‘Want some?’

He hesitated. Every astronaut instinct warned him not to eat unknown foodstuffs.

Pogee took the morsels, thanked the girl, and ate the greenery. She said to Hackett, ‘I understand your caution,’ she said. ‘But this is probably the safest food you will ever have encountered. And the most nutritious.’

‘We call it smartcrop,’ Enson said, with every evidence of pride. ‘It’s ancient tech – everything here is ancient – but we are trying to improve it. It

even has an enhanced intelligence, you see, making it capable of growing everywhere – and of responding to any problems it encounters with the host, the consumer. Treating certain illnesses, for instance. Or it can produce anti-viral vaccines. Everything save for a broken bone, we like to say, but even then the crop will help bone knit, speed the recovery ...’

Enson particularly seemed proud of this, and wanted to show it off. He and Pogee launched into an intense, detailed conversation about the capabilities of this ‘smartcrop’.

Pogee said it had all been new to her when she arrived. ‘Smartcrop is a good name ...’

The basic technology, Hackett gathered, was about information transfer. Even in nature, plants could ‘talk’ to some extent, using gene transfer direct from one generation of plants to the next, or, between more significant plants – like trees – by means of certain fungi that intertwined with the individual plants’ roots. There could develop a sort of neural net, spanning roots, fields of crops, even forests ... The result was evidently a suite of plants like a spreading AI, plants that could, given time, self-direct their own evolution into more useful forms – indeed, more efficient. And that strange intelligence was what humans had used to develop smartcrop.

There was a certain compelling logic to the result, Hackett saw, as Pogee took him through this. He knew enough, if only from studying food cycles on the *Perseus* and other craft, that food chains as they had evolved on old Earth had been hugely inefficient. It had all been all driven by sunlight energy – but only one hundred-thousandth part of that was delivered to the end user, after plants had used energy to grow, and the plants were consumed by herbivores, and the herbivores were consumed in turn by predators like humans. The goal with smartcrops was to deliver a much higher percentage of the incoming energy to the end user.

Hackett glanced around at the dome, the plants, the barefoot children. It was a forced evolution, intended to maximise efficiency of energy usage rather than complexity. Another product of megayears of space colonisation, no doubt. Flowers bred for the Kuiper Belt.

But so what? What had they done with all this advancement?

Pogee was watching him – suspiciously, perhaps. She said, ‘What are you thinking?’



‘That it’s a remarkable ... vision,’ Hackett said cautiously. He didn’t sound convincing, even to himself.

Enson looked at him suspiciously. Pogee seemed wary.

Little Agna, aware of the adults’ tension, drew back to her father and held his hand, peeking around his legs at Hackett, sucking her thumb.

And Hackett, looking down on the father, isolated by his own ridiculous height, felt a deep, intense regret.

Pogee drew him aside. ‘Suddenly you are radiating negativity. You only just got here, remember?’

‘I’m sorry. I get that I have a part to play; I’m just not playing it well. It’s just—’

‘What?’

‘Is *this* all they have, after five million years?’

She just glared at him. ‘Well, you’re upsetting little Agna.’

Agna reacted to her name being mentioned. She walked forward and reached up to take Hackett’s hand.

Her own hand felt like the most delicate object he had ever handled.

She said, ‘Would you like to play in the Maze?’

Icsoba grinned, the tension breaking. ‘I think that’s the best idea anybody’s had today.’ She took Hackett’s right arm. ‘Let’s go see the Maze ...’

The Maze turned out to be just that.

It was situated in a patch of forest, directly under the apex of the dome, along with a number of other ornamental or recreational buildings – what looked to Hackett like a bandstand, a kind of swimming pool, maybe sports arenas.

The Maze nestled in a pit made by clearing away the earth down to the bedrock beneath. The Maze itself evidently been created by cutting away its path into the bedrock beneath, leaving a tangle of walls standing, maybe two metres tall. The resulting dark passageways seemed a little claustrophobic to Hackett – and the Maze was big too, maybe fifty metres square.

Agna and a number of other children, gathered up as the party had marched to the centre, happily dropped without hesitation down into the Maze, using ladders and ropes.

Icsoba walked more carefully out to the centre of the Maze, following wooden bridges laid on top of the walls. She held up a soft toy – it looked like a baby aurochs to Hackett – and said, ‘First one to the calf is the winner! Ready? And – go!’ She dropped the toy down into the heart of the Maze.

The children began to run the Maze, laughing and shouting, while their families yelled encouragement from above.

Enson approached Hackett warily. ‘John Hackett – I’m sorry if any of this has made you unhappy. We welcome visitors. But perhaps we overwhelm—’

‘Don’t apologise,’ Hackett said, still struggling with his feelings.

‘But we do see continuity, preservation, as the key to our culture,’ Enson said now. ‘Myself, I learned that much about ourselves from Rava Pogee, with her outsider’s point of view. Why, look at this Maze as an example. When it first began, so the legend goes, not long after the first landing here, it was marked out on the bare rock with ropes as rules and lines of paint, and the children just ran around in the open air. Now look at it. Just imagine!’

And Hackett did imagine it. Did see it now, suddenly.

This Maze hadn’t been dug out, not a few decades ago, or any time recently. *Not long after the first landing here.*

It had been marked out, and then *worn* into the bedrock.

Worn by the feet of running children.

Over years and decades and centuries and millennia ...

When he looked up, shocked by time, he met the wondering eyes of Icsoba – and Enson’s cautious scrutiny.

Inside the city on the ice, the days wore away smoothly. One after another. As they had for tens of thousands of generations, perhaps.

Still, after an uncomfortable start, Hackett found it easy to adjust to the slow rhythms of life here.

Part of it was the seductive calm of the colony itself. That huge dome above was semi-translucent, so that the daylight was reduced to a steady, sweeping wash, and day and night passed in a smooth, edgeless, seamless transition that reminded Hackett of the inside of a therapeutic isolation tank. And there was, apparently, very rarely any meaningful weather, up on this ice cap. Though there could be some vicious storms in the tropics – in the crowded temperate forests of north Africa and Amazonia, far away – there was barely any fresh precipitation at all up here on the ice, even at the height of summer or the depth of winter.

Even so he wished he could rip a few windows in that dome, just to remind himself of where he was.

After a few days, Rava Pogee said she understood how he felt.

He said, ‘You told me to think of this as a landed space habitat, not a landlubber’s city, grown from the Earth. But I just spent subjective decades in a tin can of my own. So, huge as it is, why does *this* feel so claustrophobic?’

She leaned closer. ‘Because of the inhabitants you share it with,’ she whispered. She grinned and walked away, leaving him to figure that out for himself.

And as he spent more time with these people, he thought she had a point.

He couldn’t complain about hospitality.

Icsoba and Enson had taken him in, tentatively. Their wider family occupied a cluster of dome-shaped shelters, not far inside the southern entrance of Ambriel where Hackett himself had first entered. *Domes*: they were like igloos, he thought, flattish spherical caps with small doors, a few transparent panels for windows. They were built for the small folk of this age, and Hackett could barely stand straight even at the centre of the largest of these houses, with kids swarming around him, and laughing every time he scraped his head against the roof.

And in such domes, and in the common areas around them, the people lived.

Hackett thought that pretty much summed it up. They *lived*. They made meals, exclusively from smartcrop produce, highly technologically advanced artificial life forms plucked, beaten, roasted, fried, mashed, and turned into multi-flavour meals he couldn't have labelled, but which were perfectly palatable – and interesting to make, as he learned when he volunteered for chores. He did miss chili, though.

As well as cooking, they made stuff. Clothing. Shoes. It seemed there were automated factories of some kind that churned out anything you desired, in particular protective gear if you were to venture out onto the ice. But people made their own anyhow. They extracted what looked like cotton or flax from some of the smartcrops; they wove, plaited, dyed, even pursued crafts that looked like crochet or knitting. So the little kids like Agna ran around in brightly coloured garments, each unique, that wore out faster than they could be made, as far as Hackett could see.

There was trade, of a sort. People cooked fancy meals for their neighbours in exchange for fancy clothes – that kind of thing. The raw materials were free, but it was the labour put into this stuff that made such goods valuable. Pogee had observed this for a longer time, and said there was an elaborate, ever-evolving exchange rate concerning such transactions, but she had seen no sign of anything like money, and only rarely any kind of written receipt or token. All word of mouth.

People painted their little kids' faces.

They told their older kids stories – not of the heroic age of space from which Pogee and Hackett had come, but about how Grandfather had once had a face-painter decorate the back of his bald head, and he walked around

backwards for two days, making everybody laugh until he nearly fell backwards into the Maze.

For the older kids there was plenty of sport, highly competitive as far as Hackett could see – running, jumping, ball games, gymnastics. Ski races out on the ice.

They just *lived*. One day after another.

Only Icsoba, whose family had taken him in, seemed to have a sense of a wider perspective. Icsoba, who had come to meet him on the salt flat when he had fallen from the sky. Icsoba, evidently the current leader of the four thousand souls in this habitat, this grounded generation starship.

The *leader*, though. What did *that* mean?

If some crisis did blow up, either through some human misbehaviour or a technical or environmental glitch – an equipment failure, a meteorite strike – there must be lifeboat rules, a fall-back authoritarian command structure for quick decision making. So he imagined. That had always been the way in space habitats, colonies.

But if there was any other kind of governance here, beyond Icsoba's boosterish good nature, he had yet to see it in the presence of actual officials, or police, or whatnot. That hadn't been so unusual in some of the smaller offworld habitats he had visited in his own time. Once you had more than a few hundred inhabitants – a number small enough to run things with town hall meetings, everybody getting together and having a say – you generally needed some kind of structure. That was hard-wired into human nature, it seemed to him.

And yet there were four thousand souls living, right now, in this habitat, with no such structure apparent.

Still, Hackett guessed that the group dynamic here was probably a deeper relic of his own spacefaring age, or an extension of it – a long age of small communities in isolated bubbles of technology, which – if they survived at all – had to develop a kind of group consciousness, an elevated awareness of the finiteness of their environment, and of how individual choices affected the security of that environment. Evidently the same kind of awareness had eventually emerged on Earth, belatedly, as the planet had slowly healed after the Sapiens Extinction. Just as Pogee had said. Generation starship rules.

In this universe, in the very long run, humanity had evidently figured out that you survived by learning to stand still.

Mostly.

The trouble Hackett was finding was that these patient, kind folk stood too damn still for him.

And he couldn't shake off that image of the Maze, worn into rock by children's bare feet. *How long ...?*

After a month of this – he counted the days – Hackett sought out Rava Pogee.

It was late afternoon, the dome light fading to a kind of twilight. Pogee sat in her chair, at the perimeter of one of the larger sports parks. Just watching folk go by. When he approached, she patted a bench beside her chair. He felt too cooped up to sit still. But he sat anyway.

In the distance young people ran and called and threw balls at each other, following the rules of yet another arcane game. Their shouting sounded oddly loud to Hackett. An evening sound, neighbourhood kids playing. Eternal.

Pogee turned, stiffly, and said without preamble, 'I knew you would get this way, after a few days, weeks.'

'What way?'

'Restless.' She shrugged.

'You knew, did you?'

'Well, *I* got that way, and you have a lot more in common with me than our hosts, here. Which is why I asked Icsoba to take you, and me, out on her next excursion.'

'Out? Out where?'

'Does it matter? For your information, to what you would call an observatory, I think. They do actual science there, still. I say *still*. I once got hold of a history thread in their conversation. There seem to have been multiple ... rebirths of science—'

'Renaissances?'

She seemed to look inward. 'I think that's an appropriate term. When one civilisation collapses, and its learning has to be rediscovered by its successors. After your time, the first recovery came after the First War of the Planets had blown itself out. Anyhow – oh, look, enough talk. Just come

see what they *do*. That will give you a better insight into how they think than all my words. There's an expedition tonight. Go get kit, and we'll walk on the ice with our descendants.'

He glanced around at the already dimming light. 'Tonight?'

'Daylight inhibits most forms of astronomy somewhat,' she said dryly. 'Don't worry. I'll hold your hand.'

Hackett had been out of the dome a couple of times since his arrival. Because he was so tall compared to the population, there had had to be some heroic tailoring to produce a version of the locals' layered outdoor clothing for him. He was slow to suit up, though, this evening as before, and was clumsy walking out, his longer legs notwithstanding.

But as he and Rava passed through one of the dome's big airlocks – on the west side, a way out new to Hackett – Icsoba and Enson were waiting for him. There were maybe a dozen others here, only a couple of them kids, the latter swaddled in coats, faces hidden from sight inside deep tunnel-like hoods.

They all lined up and filed out of the dome.

The locals' conversation was quiet, but the words carried clearly over the ice, and were rendered comprehensible to Hackett by the invisible technology of the age. He estimated it was half gossip, half technical expedition chat. Nothing about himself.

The night sky above was moonless and huge, speckled with brilliant stars. There wasn't even an aurora. He might almost have been in deep space.

'And I should know,' he murmured.

'Talking to yourself?' It was Icsoba, who dropped back to walk beside him. 'Bad habit.'

'A necessary one, if you ever took a trip like the one I did.' And he bit his tongue, metaphorically. 'Sorry. I know I have a habit of bringing everything back to me.'

She shrugged. 'You did something epic. You deserve to be heard. As the heroes of epic songs of old deserved to be.'

He shrugged. 'Maybe that kind of tale is hard-wired into us.'



Even by starlight he could see she was faintly puzzled by that. Probably by whatever the translation of the term *hard-wired* was.

But her brother Enson walked up. ‘I know what that means. No, John Hackett, tales of wanderlust and appropriation are not locked inside our souls. Even if my sister finds them – distracting.’ He slowed his walk, and faced Hackett.

Hackett stood still, stood his ground. He’d been expecting some kind of challenge from this man, at some point.

They faced each other, for a few seconds more.

Then Hackett slapped the other man’s shoulder. ‘OK. And I’ve always thought the most useful language is the language of truth. Let’s go see your telescope ...’

It took maybe thirty minutes to reach the instrument they wanted him to see.

If Hackett had been expecting telescopes as in his age – a huge radio dish, some monstrous optical array – he was disappointed. They topped a low rise in the ice sheet, and looked down on what might have been a shallow crater – too symmetrical to be natural, though – containing nothing but some kind of sheet on the ground, a matt black material, looking more like a sprawling solar energy array than any astronomical instrument he had ever seen.

Some of the folk knelt, brushed away thin scatterings of windblown ice particles, seeming to murmur at the dark substance. Hackett wondered if they could hear or see some kind of automated response.

He was aware of Icsoba, Enson watching him. He didn’t know what to say.

And Pogee laughed, not unkindly. ‘You’ve no idea how this thing works, have you? Lots of Renaissances between your time and this, Hackett, remember. And they didn’t all unfold the same way. Who was the first to use an astronomical telescope in your age? Hubble?’

‘Galileo—’

‘Remember that here if they want a new technology they dig it up out of the ground. All of it more advanced than anything they could develop themselves in a thousand years. The smart part is finding the right stuff, but even then all they have to do is interrogate one lot of smart ancient engines

about the location of other smart ancient engines. They all seem to be aware of each other ... If you want to study astronomy, you just ask for smart telescopes. The problem is usually framing the right question in the first place.'

'I know the feeling,' he said ruefully. 'If you lack the context—'

'The machines help as far as they can.'

'There are sites like this all around the world,' Enson said. 'Mostly on the ice. Telescopes, all speaking to each other. All studying the sky. Sometimes people are with them, sometimes not.'

Hackett got the idea. 'I'm impressed. Really.'

Icsoba seemed genuinely pleased.

But he caught a glance from Enson. Hard, suspicious now, perhaps of a perceived sarcasm, of condescension by Hackett. *You're making an enemy here, John. Not wise.*

They moved on.

Hackett said, 'So what is it you are looking for tonight? Do you study anything other than the Sun, the stars? How about traces of technology, of life – human, alien?'

Enson looked puzzled, and glanced at Pogee.

She sighed. 'They have different assumptions, Hackett. I'm not sure the translation suites are keeping up with your questions. Astronomy is – complete. Like many other sciences. There is nothing fundamentally new to learn. Yes, there is monitoring to be done – mapping the slow heating of the Sun. And, you mentioned "alien". By which you mean life not originating on Earth – *minds* not originating on Earth. Correct?'

'Correct. Non-terrestrial life. Non-human intelligence,' Hackett said. 'I suppose we'd been watching the skies on and off for a couple of centuries even before my departure. Seeking the alien.'

Enson seemed hostile again. 'And did *you* find the alien? Either here, or on the way to Andromeda?'

'Not a trace. And we looked hard, we looked in every way we could think of. We looked for traces of life itself, of course. Life like ours, I mean, proteins in water. We could have seen that from afar – anomalous atmospheric contents, oxygen or methane that should have rusted out into the rocks, if not for being generated by life. No trace of it outside the Solar

System – and everything we found here, primitive bugs in the water-ice moons, Mars, seemed to have been seeded from Earth.

‘Away from the Solar System, we kept an open mind, found nothing. And none of that in Andromeda either. I guess we sampled two galaxies ...’

‘Meanwhile we looked for technology too. Monitored the whole electromagnetic spectrum for signals. Looked for signs of artefacts, from Dyson spheres upwards.’

Pogee frowned at that phrase, *Dyson spheres*. Maybe the translation was obscure. ‘Oh. Star cloaks? Even we didn’t manage to complete one of those.’

‘Well, we found nothing,’ he said. ‘No life. No mark of intelligence ...’

Now Icsoba came walking back. ‘No intelligence. What you mean is, *no colonisation*, don’t you? No exploitation. I mean, colonisation as carried out by your generation, and those that preceded you. That’s what you see as the ultimate mark of intelligence.’

‘Right.’ Enson waved a hand. ‘Which would have left a sky full of antique, useless wrecks, just like the Solar System. You did all *this* in fifty thousand years. Which is only one per cent of the time our city, our Ambriel, has been peacefully standing.’

Hackett bowed his head. ‘Yes, this is the way to play the long game, I can see that. But ...’

Pogee nudged him. ‘But what?’

He sighed, feeling he was about to cross some line. ‘But what’s the point?’

Icsoba looked baffled, disturbed. Pogee watched, wary, perhaps calculating. Enson laughed, contemptuous.

Not for the first time Hackett had the grim feeling that he had said too much, said something too *wrong*. He was here, alive in this time, on the sufferance of these people. Had he gone too far?

Icsoba said, ‘I think we need a break. To talk. Just the four of us.’ She walked over to the nearest smart surface. She clapped her hands and said, ‘Shelter. Four people.’

Hackett wasn’t particularly surprised when a section of the black, ice-hugging telescope sheet blistered up into a dome shape, a little less tall than he was. A door dilated open, revealing a lit interior within. And he saw vapour emerging, the air apparently flash-heated.

‘Now that,’ he said, ‘is what I call an igloo.’

The four of them crowded inside, loosened their clothing, and settled on a floor that was comfortably warm, despite the suddenness of the unfolding of this shelter. Hackett went furthest in, with Icsoba to his left, Enson to his right and Pogee opposite him, nearest the door – which sealed itself up once they were all inside.

Icsoba brought a pack that she dumped on the floor, and opened to reveal a flask, plates, some food – a kind of loaf, what might have been cheese, both, Hackett knew, products of processed smartcrops. Icsoba passed around four stacked cups, and poured out hot liquid in each.

When it was Hackett's turn she said, 'The cups learn your preference. Just say what you want—'

'Coffee.' He knew that word worked, too – or at least he had taught the local smart systems what he meant, and what he got wasn't perfect, but near enough.

The rest sipped what looked to Hackett like a variety of teas.

Enson glared at him throughout.

'So,' Hackett said, 'I'll break the silence. Why are we in here? Not that it isn't fun camping out on the ice.'

Pogee growled, "'What's the point?'"

Enson said, 'The invitation was mine, that I suddenly seemed to see that there was no meaningful chain of understanding between us at all ...'

Icsoba said, 'Evidently we need to talk this through.'

Hackett said, 'OK. I'm sorry. I don't mean to offend, with my attitude. It's just that I keep on remembering how *old* all this is. Ambriel! Five million years. Correct? And habitats like it. I looked it up.' Using his ship's systems. 'That's longer than the *Homo* genus had even existed when I left Earth for Andromeda. Longer than since we split off from the chimps. *All*

*that time*. And what have you achieved? Why, you seem to be *shedding* technology, not developing it. You don't need to farm, or develop medicines and vaccines. The smartcrops do it for you!

Enson frowned. 'Is that so bad? Is that bad at all? All of us live on the wisdom of those who went before. Even in your day—'

'We have been happy,' Icsoba said now. 'We and our ancestors. Happy and stable for five million years, as you say. We are happy now. Is that such a bad thing? You fled your own time.'

'Well, I wouldn't put it quite like that—'

Enson snapped, 'You ask, what is the point? Of the very basis on which we live our lives? I might ask you – both of you, Pogee and Hackett – what was the *point* of all your expansion, consumption, depletion? Would you only recognise us, Hackett, Pogee, as intelligent, if we burned down our home as you did yours?'

Pogee seemed reluctant to respond.

'Good question,' Hackett said cautiously, mulling that over. 'On the upside, there were *big* populations, back in the day. A very great many human beings got to exist, got to live *some* kind of life. And that's got to mean something. Certainly a few people, in every generation, got disgustingly rich. Rather more were desperately poor. But we didn't entirely waste *all* the resources. We did make a mark on human history, for ever. Here we are discussing it all five million years later. We also learned a hell of a lot. Learned how the world works—'

'Even as you destroyed it,' Pogee murmured.

'There is that ...' Hackett felt deflated. After all, why was he defending the indefensible? 'I don't know. I have no general theory. Maybe you need *one* generation to be crazy enough to burn through all that, to lay the foundations for a cosmic understanding in the first place. Without us ...'

Enson studied Hackett. 'And did you *believe* in it all? That all of this was for the good? With your epic journey to an intergalactic frontier as a kind of climax?'

'I sent back a hell of a lot of science—'

'To a world that had all but forgotten you. As you must have anticipated.'

Icsoba said, 'Why did *you* go? You, rather than someone else? Why did you flee?'

‘I was an engineer. I wanted to see my design proven—’

‘*Why did you flee?* Did you want to die, as your companions did?’

‘Not that. Maybe I wanted *not* to die. Relativity, remember. Not soon, anyhow.’

‘Why?’

He was silent a moment. ‘So that the universe would not forget, because *I* would not forget. There. Is that what you wanted to know? There was something specific. I had family.’ And he had a sudden, sharp memory of Sarah. ‘I had a niece. As little Agna is your niece, Icsoba. She ...’

Enson and Icsoba exchanged glances.

‘She died.’

Pogee said, ‘I didn’t know that. I’m sorry. So, the death in the family. A particularly heart-rending one, yes? But you fled to another *galaxy* to escape it?’

‘No, not that,’ he snapped back angrily. ‘What the hell is this, psychoanalysis in the year five million?’

Icsoba stayed cool. ‘If it was not some form of extended suicide—’

Enson said, ‘It does sound like that. As if you had lost all you cared for.’ He nodded. ‘I can understand. I know what I live for. My family. Agna, my own daughter. I don’t fly off to other galaxies. I stay with her, I play with her ... When I die, my memories will not be of exploding suns. It will be of her first smile – perhaps her own child, one day.’

Hackett tapped his forehead, hard, growing angry. ‘You think I am fleeing from reality. No. *I wanted to remember* reality. I remember her now, five million years after we lost her, and if I can I will go on, and on ... Oh, I know it can’t go on for ever. The universe is dying. All of it. The Sun is dying. One day it will swell to a giant and wipe out this world. What then? Who will there be to remember, then? What will the point of it all have been – *then?*’

Enson asked, ‘And as you follow these goals, as you reach out from your own horrific past – are you a danger here, Hackett? Ours is a calm, peaceful society. Will you destabilise—’

The light failed, in an instant.

Hackett had no time to react.

He felt the knife plunge into his upper back. Knowing what it was immediately.

The agonising pain came, and his consciousness fragmented, and he slumped forward in the deep dark.



During the ride home he drifted back to consciousness, once, twice – maybe more, it was a little blurred. And to be bathed in the featureless light, the smooth, even humming of the transporter, was soothing.

He remembered the pain, though. Not his back, really – his shoulder, on the left. Now he felt nothing there at all.

Once he tried to sit up, to move.

Rava Pogee hovered over him, calm, composed. ‘Stay still.’

‘I want to go back to the *Perseus*.’

She moved closer, her face briefly eclipsing the overhead light panels. In her shadow, he flinched. A reminder of the trauma, that sudden dark.

‘Why?’

‘The lights don’t fail up there.’

‘It’s best you stay down here for now—’

‘I have medical facilities on the ship. I know them like the inside of my head. The automedic on board—’

‘Is five million years behind what they have down here. Let them get you back to Ambriel. Though you are already fixed up pretty well, thanks to the transport’s med station—’

‘*Down here*, somebody just tried to kill me, five million years advanced or not. Somebody in this damn bus.’

‘They weren’t trying to kill you.’ She patted her own left shoulder. ‘The blade struck you in the fleshy part between shoulder and neck. They used your own knife, by the way. You shouldn’t have brought it down here. I’m no medic. You bled a lot, and passed out quickly, but you were never going to die. If that was the intention – well, I don’t know, people don’t go around murdering each other with blades, not here – a stab into the heart? Severing your spinal column? Something more subtle, and lethal?’

‘Then why the hell attack me at all?’

She shrugged. ‘I don’t know. Some kind of symbolic gesture?’

‘One hell of a symbol.’

‘Everybody was just – frozen – in the dark. I had no idea what was going on.’ She glanced around, presumably at Icsoba and Enson, both out of his field of view. ‘Killing you can’t have been their intention. Whoever it was. Maybe it was both of them, working in concert.’

He stared at her. ‘Why would they do it? And, Pogee, look at it from my point of view. It could have been you.’

‘I know that’s logical. I was in the shelter at the time. Why would I, though?’

‘Hell, I don’t know—’

‘And if I did want to kill you, why try here with two witnesses? And why would I bungle it, or deliberately—’

‘OK, OK.’

‘Also I was sitting opposite you. Pretty tricky to lean across the cabin and do the deed without the others noticing, even in the dark.’

‘There is that.’ He tried to raise his head, but his vision blurred. He felt ... distanced, or as if immersed in some soothing fluid.

‘Stay still,’ Pogee said more firmly. ‘The treatment they gave you will be effective with time. Some kind of local sedative that kills the pain, some kind of gene-based therapy that is knitting up the wound right now. I’ve seen their medical facilities at work before. You’ll be able to walk off this bus by the time we get back to Ambriel. Look, I’ll stay here, or leave you alone. Whichever makes you feel better.’

He thought about that. *She had been sitting opposite him.* She was the nearest he had to an ally – or a guard. He reached for her hand.

That touch was the last thing he was aware of before he slipped back into a shallow, restless sleep.

It turned out that Ambriel had a justice system, of sorts. If an informal one.

There would be a hearing about the stabbing, in a few days’ time, before somebody called a ‘First Speaker’, when one was appointed. As far as Hackett could tell, this figure would be a mixture of prosecution, defence, and judge wrapped up in one. But the whole of the colony could participate if they liked – generally remotely, for the sake of calmness during the

procedure. And so every competent adult human would be part of a kind of mass jury.

Beyond the hearing there were appeal procedures and so forth, but Hackett began to lose interest in more abstruse future possibilities.

He was told all this by a succession of strangers, mostly, given that most of the people he actually knew here in Ambriel had been in that transport with him, and, as suspects in this odd crime, were kept away. Everybody he knew well save little Agna, he supposed.

So it was also strangers who cared for him, in those preliminary days, as he recuperated in a kind of tent within the ice city, a featureless environment, calm and quiet. The systems took care of his physical needs, but people came and went with treats – a tray of steppe flowers, a handful of smartcrops with novel flavours or textures.

And they talked to him – not of the trial, and not much of himself, for they seemed to understand little of that, and cared less. They were far more interested in their own pursuits – hobbies, work, family and friends.

He gradually came to understand that there was a kind of clan system here – the clans being defined by extended family ties. The clans competed at various sports and singing contests and such, with remarkable intensity. And, it seemed, there were complicated rules governing marriages within and between clans. He imagined these had descended from ancient strictures to do with maintaining genetic diversity in a small population – classic space-habitat governance – but had evolved into a hugely complex network of ties, alliances and rivalries.

People could talk about this stuff all day. *All day.*

That was the point, really, he came to see. And it was all in their heads, or mostly. Strange thought that if every human in this habitat dropped dead, it would all vanish. A web of words and memories and ideas, gone just like that. That was human culture for you. But you never got bored, with other people around.

Even after five million years.

Maybe there was a lesson here. You didn't actually need to charge around the universe gutting worlds to be a successful culture. You just had to listen to the people around you. It all depended what your goals were, he supposed.

And he wondered, as he thought about that, whether *that* had something to do with a blade being pushed into his back. His own goals, real or perceived.

A few little kids were brought in for him to see – or, perhaps, for them to have a chance to see *him*, the wanderer from the stars. They showed him drawings and toys, and sang songs or danced. He enjoyed these visits.

Little Agna was never brought here, though.

Ten days after the transport's return, the hearing was called.

It was set up in the middle of a big, empty amphitheatre that dominated one flank of the domed colony.

The floor was empty, save for five chairs and the people sitting in them, in a rough ring. Further out, in the banks of seats that lined the space, a few spectators. Not many. Hackett pointed that out.

‘But you understand,’ said the First Speaker to Hackett and Pogee, ‘that every word you speak, every gesture, can be witnessed by anybody who chooses to see. Whether inside Ambriel itself or not. In fact it is everyone’s duty to watch and hear as much as they can, for—’

‘There’s to be a collective judgement,’ Hackett said. ‘I understand.’

The Speaker nodded, and continued with the briefing. She looked perhaps mid-thirties, though Hackett found it hard to judge ages here. He didn’t know the Speaker’s name, and had never knowingly met her before the hearing. That was their system, it seemed: the automatics selected the Speaker for such cases at random, given certain qualifications, and they were ideally unknown to the principals in the case – and with no known close ties of blood or marriage. Given the elaborate marriage rules it seemed that more candidates were ruled out for that than for any other cause.

Otherwise here they were, the four of them – plus the Speaker – sitting in a circle again, just as they had been in the shelter out on the ice, when *it* had happened. If not in the same relative arrangement, which really would have freaked him out, he thought. And far apart enough this time to make it impossible for anybody to reach out and pat him on the back with a blade ...

‘Hackett John.’

The Speaker was addressing him directly.

‘Sorry. I’m distanced out. All this is a lot to take in.’

‘I understand that—’

‘My name is John Hackett, that order.’

‘I will remember.’

The Speaker seemed admirably calm, Hackett noted.

‘John Hackett. You were attacked ...’

She briefly ran through the specifics of the wounding, and summarised such records as were available. Records of the key images and incidents were shown in panels on the smart walls or floors around them, and Hackett understood they were accessible throughout the habitat.

But no record showed the darkened moment of the stabbing itself, of course. If there had been any infra-red coverage, it wasn’t shown. And there didn’t seem to have been any forensic examination of the crime scene either. Not so much as fingerprint checks – but then they had all been wearing gloves, himself included.

This lack of overt surveillance brought home to Hackett more strongly than anything else the innocence of this society. They *must* have access to such technologies, but it seemed that privacy and trust trumped that. He felt guilty himself, about having brought such a crime into these people’s lives, even as a victim. And he thought he saw shame in Icsoba’s face, perhaps for that very reason.

‘The purpose of this hearing is to establish guilt for this crime, if possible, to assign any appropriate punishment. As everybody knows, appeals are possible.’

‘And will be taken up,’ Pogee murmured to Hackett. ‘They can spin these things out for months; I’ve seen it. For much more trivial offences. It’s all a distraction.’

*Like the marriage rules*, Hackett thought. Something to gossip about. And now he was the subject of the gossip.

‘... John Hackett.’

He was being addressed again. ‘Sorry?’

‘Tell us in your own words why you think this was done. Why you were attacked.’

‘Why *I* think I was attacked?’

‘It may guide us as to the true cause.’

‘OK ...’ He glanced around at them, at Enson, Icsoba, Pogee. ‘Look. I’m a human from the deep past, a very different past. A very different culture. And I’ve seen things that none of *you* have seen, or, perhaps, can imagine. Not in this comfortable, enclosing bubble-world of yours. I’m sorry. I don’t mean to sound pejorative.’ He glanced at Pogee. ‘Only Rava Pogee has any experiences remotely comparable to mine, even *she* is from a time very far removed from my own.’

Pogee nodded.

‘So you are – different.’

‘You could say that. And as such I am a disturbance.’

‘A disturbance how?’

He looked steadily at the Speaker. ‘Don’t you know? I bet everybody in this place has been following the story of the stranger from the deep past who fell out of the sky. Even if there is a precedent, in Pogee here.’

The Speaker nodded. ‘You address me personally. Yes, the story was interesting; yes, I followed it to some extent. But less than most, or I wouldn’t have got this job.’

Smiles around the group.

‘I was interested. Curious, even. But I wouldn’t say *disturbed*.’

‘Then you haven’t been listening,’ Hackett said. ‘Not properly. Not to the subtexts, the meaning beneath the words and actions and consequences. And not to the *lesson* I represent simply by being here. A human being from a different time. Because, you see, all of *you* live in this timeless bubble in the ice, and have done for a geological epoch, as far as I can see. I’m sorry if I get a bit technical at times.’

The Speaker half-smiled. ‘After that geological epoch, our translation machines have learned to handle even language that gets a “bit technical”.’

Hackett let himself smile back. He found he was growing to like this woman. But maybe it was that likeable quality that qualified her for the job.

‘OK. Sorry. But you see the point. Your home here, your way of life, is effectively timeless. But in fact, on a larger scale, you exist within a brief window of stasis, between upheavals.’

‘Upheavals caused by humanity? The great drawing down of the resources of the Solar System, as happened in your time?’

‘No! Well, not just that. All of that, what Pogee here calls the Wars of the Planets, were five million years ago. Correct? But, even back then, we had a

sense of the evolution of the Earth, the Sun, the stars, the galaxies – the whole damn universe.

‘Look – forget the five million years between us. Fifteen billion years ago the universe itself didn’t yet exist – or that was how the science of my day had it. *Five* billion years ago the Sun and planets had yet to begin to form. I travelled five million years after my birth, to find everything changed here – but five *billion* years from now Earth will probably be unrecognisable, if only because of the Sun’s changes. Like all stars the Sun is using up its fuel, growing hotter – no more ice on Earth then – it will expand eventually into a red giant, a huge distended mass that might destroy Earth altogether.

‘And that’s not all. I was sent to the Andromeda Galaxy, in my wonderful *Perseus*. You know why? Because aside from a few dwarf systems, that’s the nearest galaxy to our own – and in five billion years it’s going to *collide* with our own galaxy. Think of that! One purpose of my mission, actually, was to send back data, to get a close-up look at Andromeda, the star lanes, the big black hole at the centre, to inform some kind of preliminary estimate of how that collision might unfold. And what the long-term implications might be.’

‘Long-term implications—’

‘For life. For *humanity*, if we haven’t already died out by then. The universe is not a place of stasis. It’s a place of change. It always will be. Ultimately, if we just sit here on Earth, we will be driven to extinction, one way or another. *Unless we do something about it.*

‘That’s how people thought back in my day. Some of us, anyhow. The future as a series of obstacles to overcome – the goal being to maximise the potential future for life and mind. And we planned how we might survive these events, if we look far enough ahead. How we could *use* these great flows of energy and mass. In fact—’ He hesitated. ‘Since the attack, I’ve been thinking of – well, of leaving here. Taking *Perseus* out again, to go further – in space, but more importantly in time. I could go and *see* the galaxies collide.’ He couldn’t suppress a grin, even with that knife wound in his back. ‘What a sight.’

To his surprise the Speaker suddenly turned away. She dropped her head, briefly covered her ears – then shook her head, reached for a cup of water on the floor beside her.



Pogee reached out to touch her shoulder. ‘Are you all right?’

The Speaker gulped water, then set down her cup with elaborate care, Hackett thought, possibly a conscious manoeuvre to calm herself down.

‘I’m sorry,’ she said at length. She glanced at Hackett, then away. ‘I was briefly – overwhelmed.’

Hackett glanced around at the group, at Pogee evidently concerned for the human being beside her, Enson looking bewildered – and Icsoba oddly cool, even calculating, Hackett thought, surprised.

‘I ought to be watching you all for clues,’ he said now. ‘Tells.’

Enson glanced at him. ‘Tells?’

‘Does that translate properly? Giveaways. Bits of behaviour that betray the inner workings of a person’s mind. Unconscious tics. Somebody here did stab me. I need to figure out who.’ He glanced at the Speaker. ‘I’m sorry if I upset you.’

She frowned now, more or less in control again. ‘You were supposed to be answering my question about motives. Let’s stick to the point. Given that the universe is dying and we’re all doomed – *who stabbed you?*’

He glanced around the little circle.

‘It *might* have been Enson. I know him the least. He seems to have no special position here – as his sister Icsoba is some kind of leader to the four thousand humans in this colony. For him it might have been personal, though. I know his little daughter likes me – I make her laugh anyhow. But maybe Enson doesn’t want his daughter to endure any kind of emotional distress through contact with a weird old relic like me.’ He glared around. ‘You all know my personal story by now. One reason for my running to the future, to the stars, was to escape a family tragedy. I can see why Enson could be protective. But a stabbing seems an extreme gambit. So: no – I don’t believe it was him.’

He looked now at Icsoba, who stared back steadily.

‘Icsoba, you will have the same impulse to protect – but you are protecting the whole community here from whatever instability I might cause, not just your own family, not just your niece, little Agna. As leader here you probably have a better sense than most of the fragility of this habitat, this way of life, even in the short term. Something like an asteroid strike, a major solar flare event – there must be a dozen possible traumas that keep you awake at night, which I know nothing about. And so some

kind of instability of the soul, an infection spreading from me into your society, you must perceive as a danger. *Must?* Maybe that's too strong. Probably.'

He hesitated. Still she held his glare.

'But, you see,' he said now, more slowly, 'I've got to know you. You led the party that collected me from my lander. You spoke to me calmly then. You learned about me. You encouraged *me* to learn – why, the expedition out onto the ice was your idea, wasn't it? You thought you could tame the wild person from the past. You wouldn't *stab* me to shut me up. That's much too crude, for you.'

'But, Hackett,' Rava Pogee said, 'if you eliminate *her*, that only leaves *me*.'

There was a moment of silence. It seemed nobody dared move.

Slowly, he turned to Rava.

'Yes,' Icsoba said. 'That would leave only you, Rava.'

Rava nodded. 'But there's a practical difficulty. I was sitting opposite Hackett, not beside him, like the others.'

Hackett shrugged. 'It still could have been done. I'm not saying it *was*. You rig the lights to go down. You've rehearsed the moment in your head. While we are all shocked in the dark you reach over, cut me, sit back down.'

Pogee said, quite calmly, 'What would I gain by killing you, Hackett? I'm more like *you* than I am like any of these people. Another relic from the past – arriving by a different route, from a different era, but just as disruptive, you'd think, even if I was never so vocal.'

Icsoba nodded. 'But before he came here, you were unique. The only past survivor. That gives you – not power, exactly. There *is* no power to be grabbed here. But a position, at least. Prestige. You *were* unique. You were a curiosity, for successive generations. It was a comfortable life.'

Hackett nodded. 'And then I come along. Muscling in on the act. This is my best theory for you too, Pogee. From your point of view, I was fresh meat, stealing your audience.' He wondered how these archaic phrases were being translated. And he grinned; he felt a little breathless, a little high, but he had the feeling he was reaching the goal. 'Probably if I said I was also younger and better-looking you'd stab me again.'

There was no discernible reaction from any of the group.

*You need to work on your stand-up, Hackett.*

No reaction from Pogee either, not at first. Hackett glanced at the Speaker, who was keeping remarkably quiet, just letting this little scene play out.

At last Pogee said, ‘No. I wouldn’t. Because I didn’t stab you the first time. I would say that, wouldn’t I? This is an amusing scenario. But, think about it, Hackett. A fatal wound, a deed no harder to cover up than the attack you received, would have silenced you for good. And given me back my throne of uniqueness, or however it was you described it.’ She glanced at the Speaker. ‘But you can see that the stabbing was deliberately non-lethal. To stab him but leave him alive is an act of politics. My motive would have driven me to murder him. It is not – logical – that I should do this.’

Her calm confidence, her even delivery, was utterly convincing. Devastatingly so. He had no answer to that last point, and Pogee knew it.

He looked around at the little group. Icsoba, Enson, Pogee. ‘Damned if I know where to go next. What now? Am I supposed to keep confessing my sins, keep on badgering folk until they admit what they did?’

The Speaker looked back at him steadily. ‘I wouldn’t express it like that, but this is our way. There is no – formality. We have no fixed procedure. We talk and talk. Eventually the truth comes out.’

*Town hall meetings*, Hackett reflected now. ‘Well,’ he said, ‘that may be so, but I have nothing more to say.’

A moment of silence, a single beat.

Then Icsoba sighed.

All eyes turned to her.

She seemed to sit deliberately still, as if composing herself, Hackett thought. Her eyes downcast, her hands in her lap.

Then she looked at Hackett, at Pogee. ‘This new mission you have hinted at. All the way back to Andromeda—’

‘Further than that. All the way to the deep future,’ Hackett said. ‘This time I would go on a loop spanning billions of light-years in distance. Not millions. Billions. And billions of years in time.’

‘And then you would return to Earth?’

‘Possibly. Probably. That’s the plan. But by then Andromeda will have come to Earth, remember.’

Icsoba leaned forward. ‘Tell me this. *How* would you span such a distance, in that ship of yours?’

‘OK ... Look. It’s about what happens to a ship at very high speeds.

‘The *Perseus* is a ramship. It pushes forward through the cosmic dark energy field as it goes, collecting that energy. And we can just go on and on. Dark energy never runs out.

‘For such a long trip I’d dial the acceleration down to one gravity. On board, it would feel like we were walking around down here, on Earth. But it’s a constant acceleration, and we can go on for ever, just piling up the speed ...’

‘Until we approach the speed of light,’ Pogee said. ‘And our time stretches.’

He noted that ‘we’, but pushed on. ‘I’ve worked it out. We’ll have to live through forty-one years, inside the ship. After that we turn over and decelerate, for another forty-one years.

‘And when we slow, we’ll have found ourselves far beyond Andromeda. We will have been flying, as seen from outside, for two and a half *billion* years. And we will have covered two and half *billion* light-years. It doesn’t really matter where we *go*. My choice is a place we called the Perseus Cluster, would you believe, way beyond Andromeda – it was so named because Perseus was associated with Andromeda in the mythology, and from Earth they are both seen in the same part of the sky ...

‘Then we turn around and repeat the journey back. By which time over a hundred and sixty years will have passed on board – we’ll need cryogenic preservation or some such to sleep most of that away. And outside, the universe will be five billion years older. Andromeda, our Galaxy, Earth—’

‘You will come looking for Earth,’ Icsoba said quietly.

‘We’ll bring back what we’ll have witnessed as the galaxies collided ... And, yes, we’ll be coming back to Earth. Whatever Earth has become by then. Whatever humanity has become. If we can *find* Earth.’

Icsoba said, ‘You keep saying “we”.’

‘I mean me and the ship. On a trip like that you can’t help but anthropomorphise—’

‘Actually,’ said Pogee, ‘you mean you, your ship, and *me*.’

He stared at her. ‘You’re serious? You’d come with me? Why would you do that?’

She counted off points on her fingers. ‘Because you need my more advanced preservation technology, for a hundred-and-sixty-four-year jaunt. You’ve shown me *your* tech, remember. Because you need the company – anybody would – and I’m the only person around here qualified to do that *and* help you fly your ship. And ...’

He smiled. ‘To see what’s out there? After cooling your heels in this place for centuries?’

She shrugged.

There was a silence.

Then the Speaker said, ‘We are still investigating a crime, an apparent attempted murder. All of this information—’

‘Is highly relevant,’ Icsoba said, so quietly Hackett could barely hear her.

The Speaker turned to her. ‘Why is that?’

‘Because this is precisely the outcome I hoped to provoke, or something like it. When ...’

‘Yes?’

‘When I stabbed John Hackett.’

The little group before the Speaker seemed shocked to silence.

Icsoba took a deep breath. Her brother, beside her, reached over and, wordless, took her hand.

Hackett said, ‘I don’t know whether to believe you or not. *Why* would you do this?’

She thought that over and said at length, ‘I ... didn’t know how to resolve the situation you created, John Hackett. I do think you people are bad for the health of the city. You and Rava Pogee alike. I do lead here; I do observe. Ours is a culture adapted to more or less total isolation. But I think you two are right in perceiving that we are a more fragile little group than we like to believe. And you two represent instability, yes. An injection of disturbing, destabilising new information.

‘I wanted you gone.

‘So – this is how it might have happened, if you wish – I plotted. I wanted Pogee to be identified as the culprit ...’

Hackett wondered if there was a term for *framing somebody* in the language of these gentle people.

‘I think the theory I gave you of Pogee’s jealousy of Hackett was plausible. If she tried to murder him, however clumsily – well, we do not tolerate such crimes here. We put our criminals in storage until such time as there is nobody they knew left alive, or, reassessed, they have found some new place to live ...’

That surprised Hackett. He hadn’t heard of any major criminality here at all, any crime and punishment. But people were still people.

Icsoba went on, ‘But Pogee is not one of our own. We could have expelled her. *I* would have made sure we expelled her. And Hackett too, if he provoked such crimes through his very existence here. I was thinking, you see, of the stability of the colony.’

‘So *you* committed the crime,’ the Speaker said. She seemed bewildered. ‘But you wanted it to look like attempted murder by another.’

‘Yes. But ...’

Hackett thought he could see where she was going. ‘But you have been listening to us too. As well as judging us, trying to control us. Never mind the good of the colony. I think you did this – if you did it at all – because we have *distracted* you. You personally.’

Icsoba smiled thinly. ‘Distracted. That seems the right word. I find myself curious. Curious about what lies beyond the walls of this habitat – and what came before the habitat existed, what will come next. And I have come slowly to accept that, yes, humanity will have to adapt to new conditions if it is to survive in the future. And to do that we will have to learn.

‘And so I – *I needed to go too.*

‘At least one of us should, to undertake just such a mission as you have described. To the furthest galaxy, the distant future. I thought it was my duty as leader to push that possibility, to make it happen – and to leave a kind of legacy, an encouragement for others to follow me and look to a different future also. I thought that if I faked this lethal quarrel between the two of you, I could engineer the expulsion of both of you – one a potential murderer, the other a proven trouble-maker. And force you to – go and explore.’

Hackett had to smile. 'Exiles to eternity? With you along for the ride? You should have just asked politely.' He meant it as a joke. Nobody laughed.

Icsoba said, 'I have failed as leader here, whether you accept my own personal guilt or not. Perhaps I have led here too long.' She looked around, at the Speaker, at her brother. At the ice walls that contained her. 'All this is too – small for me now.' She clutched her brother's hand hard. 'It will break my heart – I will never forget you, little Agna, our family – but *I must go*. Take me with you, John Hackett. Oh, take me!'

'And me,' muttered Rava Pogee. 'Let's get out of this dump.'

It took a couple of months before the *Perseus* was made ready to fly, including, mostly under Pogee's supervision, a major upgrade to the onboard systems, notably the sleep tanks.

On the last day on Earth, as Hackett loaded up his shuttle with one last pack of gear, Enson approached him. In the bitter glacial cold, under a brilliant Sun unimpeded by cloud, Enson drew him away from the others.

'It was me, you know,' Enson murmured. 'The knife.'

Hackett glanced back at his companions. They were too far away to hear. 'Somehow I thought it might have been.'

'The stupid thing is my sister thinks she is covering for me. But I *wanted* her to cover for me. To sacrifice herself for me. I foresaw it.'

'Why? And why the stabbing in the first place?'

Enson shrugged. 'For the reasons Icsoba gave, more or less. You're a destabiliser. We don't need you here. I never intended to kill you, of course.'

'And why would you want rid of your sister?'

'Because of her personality. She's too ... down. Restless. Her own children are grown.'

Hackett hadn't even known she had had children.

'She might have another family in a few more decades ...'

And Hackett belatedly realised he didn't know how long these people lived. There must be whole dimensions to their lives that he hadn't glimpsed, or thought to ask about.

'I think she wanted a change, an escape, even if she didn't realise it herself. Every so often, you know, she goes and joins bands of wanderers, lives with them on the ice for a year. Or beyond.'

'Wanderers?'



‘They live simply. There are packs of them further south too, on the tundra, in the forests. They carry what they need. They make homes, shelters, of the ice, among the trees. They hunt horses and aurochs. She has told me in detail how they use the animals. They take the tongue, the brain, viscera, bone marrow.’

For the fat, Hackett thought. ‘I didn’t know that of her.’

‘Sometimes she’s gone for years. And now she’s done this. Wandering with you. It’s all a kind of sublimated suicide.’

Hackett studied him. ‘I had that said to me before.’

‘I’m not surprised. And that’s the reason Rava is going too, surely. You will keep on going out and out until something does kill you – all of you.’

Hackett thought that over. ‘Do one thing for me. Tell little Agna that I’ve promised to keep Auntie Icsoba safe. Even to bring her home someday, if she wants to come. Tell her that. Now get out of my sight.’

And he turned and walked away, across the ice, under the Sun, to his waiting spacecraft.

Mela

Year 20

Mela was warned that when the end came for Procyon, it might come suddenly, in a rush.

She found that hard to believe. Even after the loss of Rigel, the last town left to the south of Procyon – as the last ragged Immigrants came fleeing from that crumbled wreck – she had expected a full year’s grace before the Perimeter washed up to the fences of Procyon. That was what the geography would suggest, and the average rate of the advance ...

And preparations had been made, with that date in mind. Procyon’s better-off citizens had already had their Permits issued – precious pieces of paper which, with limitations, essentially gave you a right to go north when the time came. Of course, some had already fled into the richer zones of the Empire, deep into the Hinterland, even, it was said, as far as the inner Provinces around the Heartland itself.

Mela’s father issued such Permits. Not long after Rigel, Mela, and the rest of the family, had been given her own Permit, tucked into an inside pocket now – as at all times. You had to be prepared, her father explained to Mela with a quiet kindness. You had to be prepared.

It was about four months after Rigel, a good eight months before Procyon’s time was due. Mela was spending the day with her father, as she often did now, assisting with his work in small ways.

Sitting in his study with his paperwork, Father was an oasis of calm. Of rationality, if you didn’t consider the sheer insanity of the work he was doing as a Magistrate – shuffling lives as he shuffled the papers across his desk, the draft applications and Permits. Shuffling lives, or chains of lives. And he spoke of the unpredictable nature of the world, and its ending.

It seemed like there was plenty of time. But you had to be prepared, he said. The world had to lose the same chunk of area every year. So the geologists working at the Perimeter had long ago determined. But the smaller the residual area, the higher that loss was as a percentage of the remaining whole, and the faster the Perimeter had to advance ...

‘And the faster it advances, the more ragged that edge becomes. It’s not a *tidy* mechanism. And the closer the Tide closes in around the central territories, the more compressed and unpredictable events will inevitably come – and the more disorderly they will get, on a human scale ...’

She remembered her own experience at the Perimeter, years back, when those boundary ropes were still far beyond distant Capella – a town long lost now. She imagined huge, fast surges ... swathes of landscape just crumbling away ...

She protested, ‘Shouldn’t we have worked out how to cope better by now? A plan? Anything rather than this ... scramble, over and over?’

Father sighed. ‘A scramble, you say? Well, perhaps. Isn’t all of life a scramble, though, that you make up as you go along? When I look back on my own life I don’t discern much of a plan. One has to live as best one can, within the framework of the world as it is. It’s all we have, after all.’ He cupped her cheek, briefly. ‘Probably no rational plan at a time like this would have entailed having children. But how I would have regretted not knowing you and Ish and Tabor ...’

And Mela hid her reaction to that. She had already decided – she thought – that she wouldn’t be having children herself. Not if all she could give them was twenty years, twenty more years of chaos and flight, before the end of the *world*, when the Tide lapped over Sirius City itself ... Sometimes, when she thought about that, she felt terribly sad.

And for now, she sat quietly and watched Father work, for a while. She liked to watch, even when he didn’t need help, and it didn’t seem to disturb him. He would have a heap of blank Permits sitting to one side. He would draw these out one by one, filling in details of a citizen on each, taken from an annotated register. Each had to be signed, stamped with a broad crimson seal, and later witnessed by other city officers. Each bit of paper representing a chance of life for a human being. He hummed, nervously, as he worked. Fixing lives, one at a time.

It wasn't long before she needed to get back to her own duties: right now, volunteering at an Immigrant shelter outside the town fence. She stood up, kissed her father's forehead, and left him to his work in the calm of the study.

That was that.

It seemed like an ordinary day, even then.

The shelter at which twenty-two-year-old Mela had been working was situated just outside Procyon's city fence, on the south side – not far from where the River flowed through its culverts under the fence.

The Rigel evacuation had peaked a year before. Mela thought she had become used to the grave ritual of it all, as town after town had fallen over the last few years. First would come the early flight of the rich northwards to Procyon – or beyond, if they could afford it, even deep into the Empire. The very richest would actually leave their town years ahead of the arrival of the Perimeter itself. Some of these early comers would visit Mela's mother, knowing her through her upriver-downriver trading – some even had savings lodged with her, rescued from their fallen town.

Then came the first columns of the merely prosperous, many of them holding Permits to enter Procyon, some of them drawn up and sent out by her father's office, and others issued by the Rigel authorities before their own collapse. Even so not all made it through the final bureaucratic hurdle, and had to join the crowds of their less prosperous neighbours.

Crowds, yes. With each city the final grim routine had been the same: the arrival of the same long columns of the less wealthy, the less connected, the down at heel, the unlucky, the outright poor. Those who had no place, no documents, not enough money. All of them driven north even so by the relentlessly advancing Perimeter, and the glowing Tide behind.

Every so often officials would come out of the city to try to divert the flow, to encourage this detritus of once-rich Rigel to walk on – to go east or west in loose marches that would take them on a wide loop around Procyon itself – so they could pass on beyond the city, and be somebody else's problem. They would even be bribed with supplies, food, medicine, clothing.

For those who *could* go no further – well, there had been the Holding Camp east of the city, a set-up already years old, which Mela and her sister had once explored out of morbid curiosity. A place in which you might be fed and sheltered, if your host city was benevolent enough, but a place you could never expect to leave.

The Holding Camp had only grown over the years. All the lost southern cities had bequeathed this burden to Procyon – and the evacuation from Rigel, the last, had been the worst of all. For Procyon was *full* already, full of its own people, and those it had let in earlier, from the chain of vanished towns further downstream.

Even the Holding Camp was closed to new arrivals.

But people still came; they had to go somewhere. So, gradually, a rougher, unofficial, improvised settlement had evolved south of the town, outside the fence – south of the recognised Holding Camp – little more than a slowly churning crowd, really, without proper shelter or supply, a pit of starvation and disease. And soon there were deaths.

Officially, as far as the city was concerned, these left-behind didn't matter. There was little enough to be done even for those in the official Holding Camp. Most of these others would probably die before the Perimeter reached Procyon; when it did, they would *certainly* die. And in the meantime even their deaths weren't counted.

Mela's first glimpse of this place, a few months earlier, had sickened and horrified her – it had distressed her even to know such a desperate crowd existed, so close to her own home, her city. And, worse, to see them preyed upon, including by the city Fence Watch, who were charged with supervising the Holding Camp and any other Immigrant groups in the city's domain.

She had overheard her own brother Tabor, now a qualified Guard, talking with his pals about it. Friends like the odious Tiso who did nothing but sneer at Tabor's sisters whenever she met them. The official Holding Camp had been bad enough. In the new rougher encampments, you could buy anything you liked for a little food, medicine, clothing, blankets. Mela knew there was low-grade prostitution, theft, random violence, rape – sport, for the likes of Tiso. And Mela's own brother, it seemed.

But then she had heard about a more recent initiative, a new Perseid-run shelter, closer to the city fence, a place where at least some of the more

damaged, could be cared for. A charismatic Perseid preacher called Vitae, with other helpers, did their best to care for these desolate refugees. Mela had immediately volunteered to help.

The shelter was able to take in ten a day, was the rule. The lost souls in their camps were themselves encouraged to select the day's ten, the most vulnerable, the most ill. And so they came, day by day, the wounded, the ill, sick infants brought in by sicker mothers, all of them gaunt with hunger and the stresses of the treks by day, and of nights spent sleeping under only rough shelters, month after month.

Of course even here there was still abuse and deception, attempts at theft, even violence. But order was, more or less, kept by the Perseid preachers and a few strong-arm types – even a few Fence Watch working out of hours, voluntarily. Though not Tabor.

So Mela had worked a few hours when she could, mostly as a cook, or as a sort of untrained nurse in emergencies. She had come to learn that the one quality needed above all in such a situation was the ability to keep calm.

The most pleasing thing of all, maybe, had been what Ish had said about it, after her one and only visit to the shelter. 'I could never do this,' she had said, wide-eyed. 'I wish I could. But I'm so glad you're doing it, Mela. So proud ...'

This was where Mela was working when it happened.

In the Perseid camp. She was with a refugee she had been trying to help, a mother, gaunt, her ragged clothes loose – the flesh of her face papery, her teeth oddly prominent, cradling a baby just as gaunt, and who would not feed.

That was when the siren sounded.

And her world ended.

Everybody knew what the siren meant, of course. There had even been rehearsals.

But now it had come, Mela felt bewildered.

Looking around she saw that everybody else in the shelter, the citizen helpers anyhow, looked just as baffled, all of them wearing their protective gear, thin smocks, face masks, in the middle of their working day.

The siren's wail meant evacuation. The evacuation of Procyon itself. The Perimeter was advancing. The Tide was *here*.



But – *not today!* She had been promised a year more, or months, or weeks by the very least estimate ... *Not today!* Mela felt unreasonably cheated.

And while she stood there, paralysed, Vitae, the Perseid preacher who had set up this place, took command. He stood on a chair and shouted over the subdued hubbub of fifty or so people in the shelter. ‘That’s the evacuation notice. All of you Procyon citizens, all of you with Permits, go. Now.’

He was a tall man, the Perseid-green robe he wore showing muscles in his arms, thighs, though his age was evident. He was authoritative, impressive, Mela thought.

And he was glaring at Mela, who was still hesitating. ‘You too, Mela!’

Mela felt bewildered. ‘It can’t be today. Maybe it’s a false alarm. It’s supposed to be many days away yet—’

Vitae jumped clumsily down from his chair, and hurried over to her. He murmured, ‘The world is broken, failing. Why *should* it be orderly?’

Just as her father had said.

‘We are lucky to have effective warning systems of any kind. And it pays to heed them. Go now, child. Go to your family ... Mela! Wake up! You’re a Magistrate’s daughter. Act like it.’ And he turned away.

Mela hesitated one heartbeat more.

*Arcturus, Capella. Rigel.* Ancient names, now vanished for ever. She realised she had somehow never believed that it would come to Procyon itself. Had believed deep down that somehow Procyon, her home, would be spared. That *she* would be spared. That *it* would always be tomorrow, that today would never come. It was as if she was waking up from a lifelong dream ...

Vitae looked back. ‘Go, child.’ A hoarse whisper.

That brought her back to herself. The ill mother looked at her. ‘Go,’ she whispered, her Rigel accent strong.

‘Gheru – I can’t leave you.’

‘You must. I will find a way. My Name is Gheru. Thank you for all you have done.’ And she broke eye contact, deliberately.

Around Mela the other volunteers were already pushing their way out of the makeshift shelter.

She had to go, she knew that. She couldn't bear to look at the mother again – but, *Gheru*, her name was Gheru, she swore never to forget that name.

Then she turned away, hurrying after the rest, pulling off her thin smock, gloves, face mask, and discarding them as she went.

Outside, close to the city fence, chaos was mounting.

People milled around the south-side gate, trying to get back into the city itself. The gate was open, but was heavily manned by Fence Watch armed with clubs, shields, swords, even lances and stabbing-spears, standing before the gate and on a parapet above.

Most of those trying to get back inside the city looked like authorised citizens. But Mela could see a crowd surging out of the official Holding Camp over to the east. For them, one last dash, one last try to break through to imagined safety, to shelter. They ran for the city fence, forming up into a mob as they came.

In response the Fence Watch were forming a hasty perimeter before the gate. They were letting through citizens, recognised from briskly scanned paperwork – never looking them in the face – and just pushed back the rest.

That was the way Mela had to go.

She ran straight in among the desperate citizens seeking to pass the Guard line. Maybe her brother was there, on duty. Maybe he would help her – for once. But he was nowhere to be seen, and probably wouldn't have helped anyhow. The mob was shapeless, leaderless, near panic.

And she was still trying to get to the front when the Holding Camp mob arrived, and poured into the crowd already there. Mela could do nothing but push deeper into the melee, shoving her own way towards the Gate, as the crowd grew denser, much larger, more vociferous.

At last she found herself in front of a Guard. When she showed her Permit it took only seconds for Mela to be processed. The Guards, some of them, had come to know her as she came and went to the shelter, and the Permit she brandished was a high-status one, edged in gold – a gift of the office of her father, the Magistrate.

Even so, she tried to talk to the Guards – the nearest a blank-eyed woman.

'Move on, citizen.'

‘Please. *Tabor*. My brother. Do you know him? I don’t know where he is posted today—’

‘Move on—’

She got a shove in the back like a punch. It sent her toppling, stumbling on hands and knees to the ground.

And even as she tried to get up, more desperate people came pouring forward toward the already closing gate, one of them tripping over her and knocking her flat again. Around her the Guards pushed back, trying to re-establish a perimeter.

There was no use staying here. No use trying to find *Tabor*. As they had planned, the family had to get together now, stay together, and get out of the city by the north gates – the way the official evacuation column would go

...

What family she could find. Plans that looked foolish now.

She scrambled to her feet at last. Glancing around, she realised she was almost at the Gate itself. As she stood there the mob closed behind her, and she had no choice but to be carried along, as the folk behind her pushed forward, before the crush finally dispersed into the open spaces inside the fence.

As soon as she could, Mela pushed her way out of the crowd, and ran across town for home.

She ran, and ran.

Away from the fence, the streets were less crowded than she had expected, on this side of town at least, the south side. A few people running, mostly to the north – of course, the main evacuation corridor was to the north – and some evidently heading for their homes, as she was. There was no sign of disorder, of the nihilistic vandalism, the attempted theft of Permits, that she knew some senior Guards had predicted. Not so far, anyhow. She wondered now if there had been a leak, rumours of some kind, which had enabled people to prepare, to move faster.

Or maybe a larger proportion of the population than she might have expected had just decided to stay home. Face the end there. Running hard, panicky already, panting, stressed, right now she could see the appeal.

When she reached it, her family home seemed quiet, dark, the doors closed.

She ran at the front door, shoved it open. Not locked.

The house's little lobby was lit up by daylight through clearwood windows. No sign of disorder, or of hasty departures. No sign of anybody. Panting hard, Mela stood still for a few heartbeats, trying to listen.

Perhaps some movement in a bedroom upstairs.

She called, 'Father? Are you still there? Mother? Ish?'

No reply.

Then she heard running footsteps outside, barked commands. A clatter at the door that made her jump, perhaps from a Guard officer's stick – but then the footsteps receded. She knew that the final stages of evacuation involved a sweep through the city by the Town Guards, both to collect any stray Permit-holding citizens and to try to stop would-be illegal emigration at the source – to prevent escapees from getting even as far as the city fence, let alone into the official evacuation columns that must already be forming up by the River beyond the north gate.

More of that fumbling movement upstairs. Mela vaguely feared burglars, opportunistic squatters.

Father's study was just down the corridor, so she ran there first. No Father here, but it looked as if he had just this moment vacated the room – though it always looked like that. Chair shoved back from the desk. Documents in almost their usual orderly, precise piles – most of them. Some had been rummaged through, as if Father had at the last minute remembered he needed his own Permit – and knowing Father she wouldn't have been surprised if that was true.

And then she found the note. A bit of paper on his desk. A hasty scrawl, in her father's weak, over-elaborate handwriting:

*FAMILY: Gone south. Last chance to sort out some of the Rigel Immigrants, in the chaos. Never done enough for them. Go north. I will meet you there when ...*

She found herself unable to read the rest. Father! Stupid, stupid – following what he thought was his duty to these people of an already dead city, even as his own life imploded around him. His own family. She made to crumple the bit of paper.

But then she saw another note, under Father's. It was from Ish.

*Gone after Father. See you at S gate or at Vitae's camp. Ish*

Mela felt as if she had been punched. To go south! Father was so stupid, Ish so – trusting. She crumpled the notes in her hand.

Then she thought better of it. She put the notes down, smoothed them out, and went back to her search of the house.

Her mother's room was only a few paces away from Father's. Empty again.

The desk was cleared, the drawers and filing boxes closed and locked – Mela tried a couple – even the single chair had been pushed up neatly against the desk. Where Father's study looked as if he had been gone only minutes, Mother's looked as if it had been closed up hours ago, if not more.

Maybe it had been.

Mother had gone, then, taking what she had needed. And that, apparently, hadn't included her family.

Then she heard another round of bumping upstairs, some muffled laughter. The noise was coming from her and Ish's bedroom. Time to face that now.

She climbed the stairs.

Mela didn't hesitate. When she got there, without knocking or calling, she threw open the door.

There was a muffled shout, angry, a fumbling from under the sheets.

A jumble of impressions: the twins' two beds pushed together, a heap of sheets and blankets, a tangle of limbs. Discarded uniforms over the floor.

A woman's head and shoulders emerged first – the black hair was tousled, but Mela thought she knew her. Tiso – the senior Guard officer.

And then her brother's head poked out of the sheets. He was panting, his hair a mess too. He looked as if he hadn't shaved for days, Mela thought, shocked, distracted.

Tabor snapped, 'Perseus's green balls, what are you doing in here?'

Before Mela could answer, Tiso put in, 'Well, she's where she's supposed to be, idiot. Back home, gathering the family. Getting her own Permit, unless she already has it on her person. If she has, she should already be at the northern gate.'

Mela quailed from the authoritative voice of a Guard officer – but then the sheets slipped down to expose Tiso's bare torso, muscular arms, small breasts.

Mela felt as if she was waking up from a dream.

‘Mother’s gone,’ Tabor said. ‘Took the family accounts with her. And the cash box, by the way.’

Mela tried to take that in. ‘Gone? With the money? But—’

‘Gone with her ugly money-bags lover from Sirius. What was her name? Bel – Bel Petro, that’s it. Only met her the once. I think Mother kept her away from me. Oh, the shame!’

Tiso shook her head. ‘Lover? You never told me your mother had a lover.’

He laughed, bitter. ‘Well – wouldn’t you, if you were her? Take a lover from Sirius? Wouldn’t you pick a better life than *this*, with this scrawny kid and her stupider sister, and my feckless, useless father, when you can live it up on *our* money in Sirius? Sooner that than walk out to nowhere with the rest of the Immies.’

Mela was trying hard to process all this. She hadn’t known about any such relationship between Mother and Bel. She tried to focus. ‘So she’s gone. And Father has gone. I saw the note.’

‘Saw Father when we came in,’ Tabor said. ‘On his way out too. *He’s* not where he should be, at the north gate, helping with all the paperwork. He’s heading south, to handhold those Immies from Rigel. Rigel! Who cares about Rigel now?’

Mela felt a deep, slow anger burning through her. ‘He is doing his duty as he sees it. As for you – what, by the stars, is this?’

Tabor snorted. ‘Just having a little fun. Guards don’t get paid enough—’

‘Shame on you. Both of you. The worst crisis in the city’s history, and you’re supposed to be out there helping people. Not – not *this*, in your sisters’ beds.’

Tabor looked just as defiant, and he leered. ‘Probably what you’ve been dreaming about since I had my first erection.’

But the officer, Tiso, had the grace to look embarrassed. Even disgusted. ‘She’s more right than wrong, Constable.’ She swung her legs out of bed, and rummaged for her uniform.

Mela said, ‘What about Ish? Did you see her?’

Tiso glanced at Tabor.

He said, ‘Other sister. Twin to this one.’

Tiso shrugged. 'If she came back to an empty house, maybe she'll have gone north like she's supposed to. With her Permit and a nice neat pack of clothes, won't she?'

'No.' Mela was trying to keep from screaming at them. 'Didn't you see the notes? Didn't you even bother ... Father has gone south, to the south gate. For business. And Ish said she was following him.'

Pulling on his pants, he said, 'Then she's even dimmer than you are. What did I tell you, Tiso? They're as weak and stupid as each other—'

Tiso cut across him. She was almost dressed. 'Mela. Listen to me. Ish would have been held at the south gate, if she got that far. What do you want? Come on, think. I'm offering to help here.'

Mela thought quickly. 'Go north. That's where you are posted, right? Look for Mother. I'll go back to the south gate, check Ish hasn't gone that way. If I find her I'll bring her north. If she has got through the south gate then I know the shelter she means, I've worked there. And I'll try to find Father if he hasn't come back already.'

Tiso said, 'All right. Good plan. We'll meet you at the north caravan. Ask for me. We'll hang on as long as we can. We'll get you together with your family.'

Mela glanced over the two of them again. This Tiso really wasn't a bad person, she reflected. Apparently a competent officer. But, slumming it with her brother? Again she felt shame, and disgust.

But there was no time for this.

'Very well,' she said. 'At the caravan ...'

She left the room, slamming the door. The room she and Ish had shared since they'd been born. Never to be seen again. Somewhere in that room was a bag she had packed, a quick grab for today. Now she couldn't bear the thought of going into that room ever again.

She checked she still had her Permit. That was all she needed.

She ran from the house, not looking back.

Another dash through the southern half of the city. Mela, alone again.

She imagined the scenes at the northern wall, the gates. The frantic lines, the hasty verification of Permits as people tried to flee, to abandon their collapsing homes.

Whereas, in the south districts, she saw few people now, heard few. The crash of what sounded like clearwood breaking, raucous laughter somewhere, a scream. The only people left must be those who could not move out – or would not. Here, it was as quiet as it might be in the dead of night, she thought absently, as she ran on, stumbling, growing ever more tired.

She passed one house that was ablaze, from floor timbers to roof, with no sign of anybody around, no sign of any efforts to staunch the fire. Mela avoided the heat, but otherwise kept running, as best she could.

There were Guards still on duty at the south gate. She seemed to surprise the Guards when she got there, waving her Permit.

The commander, a squat middle-aged man, looked anxious himself, evidently under pressure. But he took the Permit, inspected it closely, handed it back to her. ‘This has already been stamped for exit, and one return entrance. You got another pass?’

‘No. But I have to get out there. Find my father, my family.’

‘Go out now and you won’t get back in.’ The Guard eyed her. ‘Why don’t you go to the north gate like everybody else? You sure you want to do this?’

A spike of doubt lodged in Mela’s mind. Could she really survive the chaos she was likely to find out there? Should she just go north and wait for Tabor and Tiso, as they had agreed? ...



No. She had to get to Father and Ish, if she could find them. She'd deal with the rest later.

She nodded. 'My father's a Magistrate. We'll sort it out.'

The Guard commander double-stamped the Permit, signed it with his own name, and passed it back. 'There you go.' He opened a small doorway beside the main gate, itself thoroughly locked. He looked at her strangely. 'Good luck.'

Which scared her. *No time, no time.*

She pushed out of the city.

Still the siren wailed.

She tried to take in the scene.

If the city itself was emptying, not so here, outside the southern gate. People swarmed everywhere.

A perimeter of Guards – hundreds of them, it seemed, a good proportion of the city's whole force, surely, concentrated in this one place – had pushed forward, to clear a stretch of open ground beyond the gate, holding back a pressing mob. They seemed to be ready to stave off an attempt to storm the gate itself.

But no attack seemed imminent to Mela. Rather, people were starting to break away, starting to move around the outside of the Fence, perhaps hoping for access to the city at the gates to west and east – or even to get to the evacuation convoys directly.

And further south of all this was the voluntary shelter run by the Perseid Vitae. So Mela had to go that way, because that was where she would find Ish, if she could be found anywhere out here, and maybe her father too.

She had no choice. She didn't think about it.

She ran straight into the mob.

To pass through this pack was noisy and claustrophobic and deeply scary – but people were pushing, rather than fighting or wielding weapons, and she was going against the flow into the town, and people let her shove, to get her out of their way.

Before long she was out, and found herself in a wider crowd of people, standing back from the main crush – more old folk here, children with their parents. A sea of people, of faces. More of them seemed passive here, away from the gate. Some were standing, others sitting – one woman, close

enough to be looking back at her as she passed, was carried in a kind of improvised stretcher. She could see people on the ground too, medics working on them perhaps. There were even a few Guards among the patients, sitting, lying, blood-spattered. These broken people must be casualties of the earlier assaults on the gate ...

‘Mela. Thank Perseus. Vitae said you must come through this way. I looked for you ...’

She’d found her father.

His Magistrate’s gown filthy, torn. Blood on his forehead.

She grabbed his arms. ‘Father, are you—’

‘Have you seen Ish?’

‘No,’ she said. ‘She said she would follow you. I came to find her. She might have gone to the Perseid shelter—’

‘The Guards broke up the shelter, and charged the people. Staff and patients, all scattered. That was before the Guards fell back to the gate.’ He shook his head. ‘Quite a disciplined manoeuvre. What they have trained for, I suppose—’

‘Oh, Father, can’t you ever stick to the point? ...’

And then Mela heard two sounds, almost simultaneously.

Her sister’s voice, distantly calling: ‘Mela! Father! Mela, Mela ...’

Mela looked around wildly.

And there was a great *crack*, like thunder. Thunder brought down from the sky. The ground under her feet shook.

Everything changed again.

All around Mela people stumbled now, ran, called out. The Guard line before the gate was crumbling, and the pressing mob was making inroads into the city, she saw – already a few people had made it through the line, despite the huge chaos, the noise.

And there was Ish, stumbling through the outer crowd. Trying to get to Mela, their father.

But now the land beneath Ish’s feet, the solid Earth, seemed to be shuddering and rocking, like a raft in rapids.

People screamed. A man yelled, ‘The Perimeter! It is here, here ...!’

Now more aftershocks reached Mela, the ground surging under her. All around her people fell, clattering against each other like toys on a table

tipped by a wilful child.

Struggling to stay standing, clinging to her father, she saw that the tilt was real.

*The land itself was breaking up.*

A jagged rift had opened up, spreading out from the fence and past the Guard line, opening up *beneath* the swarming, excluded crowds. And now, with a chthonic groan, a rumble of cracks, a great slab of the land beyond that split was tilting, tipping away from her, a tremendous platform with one ragged edge rising up, up. And where that edge crumbled she glimpsed the land's deeper structure, its geology, the layers of earth and rubble over a basement of almost featureless rock, all cracking, splintering.

People, dwarfed by this huge uplift, scrambled back from the sudden chasm opening before them. The groan of shattering rock all but drowned out their screams.

It was just as her father had said. The advance of the Tide could stall – or it could surge dramatically, wrecking landscapes, just as she saw now. This wasn't even a major surge compared to the great pulse that seemed to have brought the Perimeter suddenly so much closer to the town.

And now, shining from beneath this great slab, through the ground's foundation layers of earth and rock, she saw a pale, silvery flicker. The light she had seen once before: the light beyond the Perimeter, a light she had seen beyond doomed Rigel and Capella and Arcturus, a place once days of travel south of here.

Substrate light. The silver light of the Tide itself had come to Procyon.

Again the land shuddered. That rising slab split, fractured, and much of it tipped back, to reveal its upper surface to Mela. And on that tilting ground, high in the air, Guards and those they had tried to control were jumbled together now, slipping, falling down the increasing slope, clinging to each other for support.

*And Ish was among them.* Falling like the rest into the glow of the Tide. She was unmistakable, her clothes, her hair. Her face, as she stared down at Mela. Her mouth wide open as she screamed, inaudibly to Mela.

Falling, sliding down.

The people fell into the light, until they were extinguished, one by one.

And Ish was gone. Lost to the Tide – not interred as Aunt Vaer had been, not through a deepshaft to the Substrate, not under solemn Perseid prayers –

lost, her whole body just a flash against the Tide.

*Gone.* Without hope of eternity.

Father was screaming too, and shoved forward. 'Ish! Ish, oh Ish!'

Mela held him back, buried her head in his shoulder, as Father wept and wept.

An unknown time later, Vitae the Perseid found them.

Still they sat by the fence. They had moved to the town's eastern side, to get away from the mobs by the south gate – away from the Perimeter, which had stalled after the surge which had taken Ish. Father was sleeping now.

With a jolt of surprise, Mela realised it was dusk.

Vitae sat beside them. He moved carefully; he was an old man. He offered a flask of water. Mela drank a little, passed it back, then took it back for more.

Vitae smiled. 'That is a good sign. You are healthy. Your father will be better after escaping into sleep.'

'Perhaps. I lost my sister.'

'I know,' Vitae said gravely. 'I think I saw her myself. She was coming to the shelter, wasn't she? But was caught in that sudden advance of the Perimeter.'

'We knew that the advances could be like this. Irregular. Sudden surges. Ish and I. We travelled down the River with our parents when we were kids.' A lifetime ago. 'We saw it for ourselves. I think we never really imagined it would come here.' She glared at the broken land, huge slabs beneath which that eerie, silver glow shone bright.

Vitae sat with them. 'It should not be like this,' he murmured. 'Not according to the legend of Perseus. Oh, the crumbling of this Earth, yes – the exposure of the Substrate, that is, what we call the Tide, the light that swallows all things. But the legends also speak of Avatars, higher beings who would watch over such transitions ...'

'Avatars,' Mela said dully. 'That means nothing to me.'

'It doesn't matter. They aren't here, are they?' He glanced around. 'It won't be safe to stay here for long. Even if there isn't another Perimeter

surge ... We must be practical. You must think of yourself now. You have your papers?’

Her hand went to her jacket pocket, and she thought back.

‘We have only one valid Permit now. Between us. My father and I. For the Immigration, you see.’

‘Ah.’

‘Our family were issued four. My father issued one for himself. My mother took one; she left before I had returned home, after the warning. My brother didn’t need one; he is a Guard.’ If he’s still alive, she thought. ‘My lost sister had one Permit. That’s gone. And one for me.’ She stroked her father’s head. ‘Stamped by him personally. He has his own. I checked. But I have no valid Permit.’

Vitae thought that over. ‘Ah. Because you exited the city twice. So you can’t go back in and join the convoys.’

These were the parties going up to the northern towns by river boat, by carriage along the river-bank paths. The big, organised, provisioned parties, already leaving by the city’s north gate. She remembered her encounter with the uncharacteristically patient Fence Watch who had made sure she understood the choice she was making. The parties would leave without her.

‘You know,’ Vitae said, ‘your father came here in part to make sure he delivered my own Permit. Such kindness. He knew I could not leave here to collect it. I would give it to you if it were transferable. Ah, but a Permit is transferable within families, is it not? So you could use your father’s Permit —’

‘He needs it. You know that. He could never survive ... Immigration.’ She had trouble saying the word, applying it to her father, her own family. Herself.

‘Could you?’

‘Well, I must.’ She faced the Perseid. ‘Vitae, would you help him? Father. When he wakes. Tell him I have gone. I’ll find my own way ... another way. Make sure he doesn’t try to follow. He isn’t strong enough to protect me. Make sure he joins the convoy. His Permit should get him into Vega – the first major riverside town north of here.’ She forced a smile. ‘Perhaps he will find my mother, on her journey to Sirius itself. Perhaps she will care for him.’

The Perseid considered this. 'While you join the Immigration, as you must. I will do as you ask, of course.'

'Good. You can start now. Please, come over here ...'

Taking care not to wake her father, Mela stood, stretched, dusted herself off. 'As for me, I suppose I have a difficult journey ahead.'

'They probably won't let you in,' he said softly. 'Not any town north of here – not any town deep in the Hinterland or Provinces. Not as an Immie.'

She thought that over. 'They will have to let us in. I will make them. I will survive in any case.'

He looked at her. 'And then?'

'And then I will bring Ish back.'

There. She had said it.

Vitae nodded. 'Very well.'

And she noted that the Perseid hadn't protested that was impossible.

She bent, kissed her sleeping father's brow, gravely nodded to Vitae, and walked away, forcing herself not to look back.

So Mela began to walk, along a track that headed east at first, following the curve of the town fence. Soon she would reach the north gate, and she would join the Immigration party, and take the track from there that led onwards, ever north, towards the Heartland Mountains and fabled Sirius itself – ultimately. North, her destiny, and that of everybody who survived the collapse of Procyon, she supposed. North, north, as long as she survived. Until—

Until, in twenty years' time, there was no more north.

Deal with that when it comes, Mela. For now: one step at a time, while there are steps to be taken.

She plodded on, determinedly alone, despite the loose column of refugees following the same track.

Why not alone? Her sister was lost, and her brother had betrayed her, betrayed them all – and, she thought wistfully, her parents had betrayed her too, neither of them capable in the end of putting the interests of the family ahead of their own, in this great rolling-up of the world.

Alone, then, she told herself. No need for forgiveness. She had no other duty but to herself. Head down, walk on, north, north, as far as she could go

—  
'You're her.'

'Yes. Yes, it's her.'

'Please, madam, uh – Ish, is it? ...'

Slowly she paid attention, swimming up out of the depths of her own head.

A family stood before her, anxious-looking parents with packs of goods on their backs – just tied-up blankets, really. Two little kids wearing what looked like several layers of clothes. Mela couldn't tell their sex.



For now the parents seemed more bewildered than anxious. This wasn't far from the east side gate, itself locked and barred.

She said, 'Do I know you?'

'No, no,' the man said, nervous, talking fast. 'No reason why you should. But we met the Magistrate a few times, and we saw you. We had issues over a boundary line with our neighbours. About an extension they wanted to put up, right up to the line, and we thought—'

The woman put her hand over his. 'That doesn't matter now,' she said, reasonably gently.

And Mela started to understand. 'You recognise me. I'm the Magistrate's daughter.'

'Ish, Ish,' the man said, grinning, as if all his troubles were over. 'I knew it was you. Your father talked about you—'

'Mela.' She shook her head. 'That was my sister. Ish. I'm Mela. Ish is dead. She was caught by the Tide surge, the Perimeter advance—'

The woman's hand went to her mouth. 'When was this?'

Mela shrugged, feeling numb. 'Not an hour ago. I don't know.'

'I'm sorry, so sorry we bothered you.'

'It doesn't matter.' Mela glanced around at a gathering stream of people, all walking the way she needed to go, around the fence and to the north. The town itself must be emptying now. And here were these people holding her up. 'Look—'

'We need the Magistrate's help,' the man said desperately. 'Please – we were supposed to get Permits for Sirius itself. Residency Permits, not just temporary shelter. The paperwork we submitted was all in order. We got a note from the Magistrate's office to say so, but we had to wait for the Permits to be signed off with everybody else's—'

'The Permits never came,' the woman said, more calmly. 'We waited and waited. Finally a Fence Watch came. You know, in one of those red and blue costumes? We thought she was bringing us our papers. But she wasn't. She told us we had to go, now, get out at the nearest gate, and make our way north. We tried to get her to let us stay, in case the Permits turned up late—'

'You can't get anywhere without a Permit,' the man said. 'They won't let you join the official convoys on the river barges, or the caravans, or into the cities upriver. Everybody knows that. We didn't know what to do. We just

grabbed what we could, we hadn't even packed up properly. Next thing you know we were pushed out here.'

'Just waiting,' the woman said. 'Waiting for somebody to tell us what to do.' She forced a smile, Mela thought for the benefit of the children. 'And then we saw you, thank the living stars.'

Mela was floundering. The flood of people heading around the city fence and flowing north was gathering, thickening visibly, as if the city were disgorging its human contents as quickly as it could.

She had nothing, no power, no resources.

And yet here were these people, these parents staring at her, utterly dependent.

She ought to walk away, think of herself.

A heartbeat.

She stayed.

She thought the woman looked marginally the stronger of the two.

Gently she took the woman's arm, pulled her away from the family. 'What are your names?'

'I'm Gine, he's Rafo. Our children are Hael, the little boy, Aphe, the girl. The Magistrate might remember us, of course. He attended both namings.'

A traditional, and pleasant, magistrate's duty, for Mela now as for her father before.

Gine patted her stomach. 'Another on the way. Not very good timing, but these things happen. I'm a joiner, I work with smartwood to make—'

'The Magistrate isn't here,' Mela said as clearly as she could. 'My father. He's joining a city convoy. My father did help with the planning of it all. But the Permits were distributed days ago.'

Gine frowned. 'He went without taking you?'

Mela smiled. A flash of consideration from this desperate woman. 'He didn't have a choice. So, look – he can't help you. Or me. We have to help ourselves.' And saying that she thought she sounded like some pompous Perseid preacher.

Gine seemed bewildered. 'But what do we do? Who will give us our Permits?'

Mela suppressed a sigh. 'There'll be no more Permits. Not issued from this town. It's all – gone.' And so it was, she thought. Procyon still stood

physically, but everything human about it, all the systems of governance and maintenance and culture and all the rest, were already gone, collapsed. The city was a shell now, dead inside. And when the Perimeter came even that would be gone.

‘Then what do we do?’ Gine asked again, pressing.

‘You do what I do. Come with me. We need to get to the Immigration assembly camp, near the north gate, where people are getting organised for the trek. There’ll be resources there, food and water and medicine. Blankets and stuff. And then—’

Rafo stepped forward, away from the kids. ‘Immigration? The assembly camp? Us, with all those Immies? We aren’t Immies! We were *citizens* of this town.’ He pushed his face at Mela, despite his wife trying to step between them, to calm him down. ‘We have rights. We were promised Permits, by *your father*. We have rights!’

Mela glared back. ‘You have no rights, not here. *I* have no rights. Not any more. I’ll walk you to the camp. Come with me if you like.’ She glanced at the scared children. ‘Or not.’

Rafo seemed set to argue some more. Mela imagined it was comforting to have somebody you could rage at, rather than face the huge abstraction of the collapse of the town, this relentless wave of disintegration. *You’ve lost all the certainties in your life. Shout at the Magistrate’s daughter, if it helps.*

But Gine intervened, hastily. ‘We’ll come, we’ll come to this camp. Hael, hold my hand, and you hold Aphe’s. We’ll go with this nice lady.’

Hael, the little boy, looked bewildered. Then he asked Mela, ‘Will there be soup? We have soup for breakfast. Will there be soup at the camp?’

Mela bent down and smiled. ‘I don’t know. But I bet there’ll be something just as good.’ She straightened up. ‘Come on then, the crowding isn’t going to get any easier. Yes, hold each other’s hands tight.’

She strode out, glancing back to make sure they followed.

The husband took a couple of paces to keep up with her. ‘Thank you.’

‘It’s OK—’

‘I’m sorry.’

‘You don’t need to be.’

‘I was very unfair to you just now. Even if you had been the Magistrate yourself it wouldn’t have been fair. It’s just – you get used to having

somebody in control. Somebody to sort stuff out for you. Even life and death.'

That had always been an illusion, she thought now. In this world at least. If she hadn't understood that before witnessing the advance of the Perimeter for herself, she did now. Nobody was in charge, there was no logic to their lives, save for the slow, grand mechanism of the world itself, and *it* cared nothing for humans. So it seemed.

Rafo seemed baffled.

But Gine caught her eye, nodded. *I understand.*

The preliminary Immigrant assembly camp was perhaps a kilometre north of the town's gate. The rough trail that led to it ran parallel to the River, tracking its western bank.

When Mela had last come out this way, this trail, created by people walking north around the town, hadn't even existed. Now it was crowded by a slow-shuffling queue, flanked by Town Guards. Most of them were on foot, a few pulled carts. Some people were carrying heavy loads, stuff in packs or wrapped up in sheets or blankets. Mela even saw one young woman with an older woman on her back, carried like a child in some game.

Every stumble out of the line caused the Guards to swarm like flies around a wound, Mela observed. Sometimes they helped with repacking, or to get some old person back on their feet. More often they just shoved people back into line, dragging them upright if they had to. Mela saw no sign of any town officials here. And no sign of doctors or nurses.

The Guards were Fence Watch, with their padded armour under their blue-and-red uniforms, but some were regular Guards – and they all wore face masks, as if their fellow citizens were diseased as well as exiled. If one of them was Tabor, she didn't recognise him. And if her brother recognised *her*, he didn't show it, or reveal himself.

A slow anger brewed in Mela. She felt adrenaline surge; she wanted to stride out, to get this part of her strange new journey over with. But the line progressed at the speed of the slowest.

After a time she took turns with Gine and Rafo to carry one of the children.

It took more than an hour before they even reached the Immigration assembly camp.

From the outside, Mela could see how hastily the camp had been constructed. It was just a rough circle of stakes and smartwood panels which looked as if they had been cannibalised from the fence of the city itself – and why not? Soon the city would be gone, and would have no need of its fence.

As they approached, Mela made out more Fence Watch looking down on the shuffling crowd from a crude parapet at the top of the fence.

Gine murmured, ‘All these Guards. I didn’t know we had so many.’

Rafo shrugged. ‘I did hear they were recruiting, a while back.’

A phalanx of Guards blocked the gate itself, all of them calling for Permits to be shown. It was a last check, Mela saw, to make sure nobody with better credentials was swept up here. But if you had no Permit, it was this camp for you, and an unknown, evidently scarcely planned future.

Mela’s own invalidated Permit was still tucked inside her jacket. She felt as though it was red hot, burning her flesh, glowing through her jacket as if everybody could see. *I shouldn’t be here.*

But she walked into the camp with the family. She had little Hael in her arms just now, the child grimy, exhausted, probably hungry, briefly asleep.

This was her destiny now.

Mela and the family stumbled through the gate.

As she passed through, Mela saw there was a small hut to the right of the entrance. Locked up, some kind of plaque on its side. Rafo pointed this out to Gine.

Otherwise, inside the fence, the camp seemed open. Empty, aside from the people already there. No buildings, no facilities that she could see. Just this swathe of countryside, just earth which had recently been parkland or cropland maybe, now enclosed by the circle of fence.

She looked back. The fence itself had evidently been hastily erected, but had a complex construction, she saw, with an inward tilt and those walkways around the top. And she could see how difficult those inward-sloping faces would be to climb from the inside. Even if you made it up there, maybe by a dangling rope, you would still have to challenge the Guards on the walkways above, glaring down at the camp’s milling inhabitants.

It was clear far more work had gone into the fence than into preparing the camp itself.

And as they walked deeper into the camp, the first thing that struck Mela was the noise. A babble of voices, a clamour that echoed off the wooden panels of the fence: adults shouting, the thin sound of wailing babies, voices raised in anger and pleading, the bellows of the Guards.

And then there was the *stink*, surprisingly dense and pungent considering the whole area was open to the air. A smell of vomit and sewage and damp mud ...

*Open to the air.* Mela was thinking slowly, so slowly. Open to the air. What happened when it rained? She saw now that the Guard track on the upper fence had canvas sheeting above. Nothing for the people on the ground, save what they had brought for themselves.

Nobody cared.

It hit her all at once. That was what all this signified. Nobody *cared* what happened to the people still flowing in here, hundreds already at least, young and old, ill or healthy. They were being disposed of, expelled, exiled. And if they died here, they would simply be spared the labour of struggling on to find somewhere else to die, equally unmarked and equally unwanted.

Rafo and Gine didn't seem to have grasped that fact, not yet.

Once they were through the gate, Gine collected Hael from Mela with a murmured, 'Thank you'. Rafo put down little Aphe, and the family gathered by the door to the small, closed-up hut to the right. Stood there waiting.

Rafo said, 'We'll be fine now. Thanks for all your help.'

Mela stared at them, unsure. Again, instincts to dump them warred with an uneasy feeling that the little family were out of their depth. She sighed. 'I don't get it. How are you ... fine?'

Rafo pointed at the plaque fixed to the door of the hut. It turned out to be a well-made sign:

OFFICE  
OF THE  
IMPERIAL REMOVAL AGENT

‘You see?’ Gine said. ‘This is who’s in charge. I’m sure that when this person hears about our lost Permits it will all get sorted out, and we can join the proper caravans.’

A subtle cough. ‘I’m afraid you’ll have a long wait.’ A voice Mela knew. She turned, startled. ‘Vitae. *You’re* here!’

The Perseid preacher shrugged. She saw that his green garb was smeared with mud, and the trailing hem stained with something thicker, more pungent. Sewage, perhaps. She tried not to recoil – but if it was sewage she couldn’t smell it over the general stench in the camp.

He said, ‘Of course I’m here. Where else would I be?’

‘But I’m sure you have a Sirius Permit? My father brought it to you at the shelter! You told me so!’

He shrugged. ‘I gave it to somebody more needy. While *I* am needed here. As you can probably see. Your father, Mela – he’s safely joined an official convoy. I checked it all myself, saw him join. Saw him on the cart!’

‘But why didn’t you go with him? How did you get here?’

‘Oh, I got a ride with a platoon of Guards. All the way here, to where I knew I would be needed.’ He held out his hands. ‘Oh, Mela! It’s good to see you safe too. Well, relatively safe.’

‘And you. And my father – thank you.’ She took his hands – and noticed colourful stripes on the palms, red, orange, green.

When she asked, he just said, ‘Food ration marks. You’ll see. You’ll get one. Now, your friends here, I don’t believe I’ve met—’

Mela introduced them. His smile was like a sunburst, and the family clearly couldn’t help but respond.

Rafo said earnestly, ‘I’m thinking we will get things sorted out in a few days, at worst. As soon as we can speak to this Removal Agent.’

But Vitae said gently, ‘Well, if there is anybody assigned to this office, I’ve seen nothing of them. Not yet.’

Rafo frowned. ‘The Guards, then. Maybe one of their officers, if we can find one we can explain to. Find one who will listen. We shouldn’t be here. It’s just a mix-up in the paperwork.’ He looked up at the lines of Guards on the parapet. He waved, tentatively. None of the Guards reacted, ‘Maybe if I got up there to speak to them – there must be a ladder or a stair—’

‘I wouldn’t try that,’ Vitae said quickly.



Rafo, brittle, said helplessly, ‘Then what are we to do? ... look. I’ll wait here. Sort things out. Maybe this Removal Agent will show up. Or somebody else. *Somebody* must be in charge here. To sort things out.’

Vitae stayed calm, admirably so, Mela thought again, but he said nothing.

Aphe was still grizzling, so Vitae leaned forward, smiled, and stuck out his tongue. He got a smile back in return. ‘Come on. I bet I know what those little ones want, and in what order. Toilet first, then food – or better yet a drink.’

‘Pee-pee,’ said Aphe, still smiling.

‘That’s right. Pee-pee first. Come on, I’ll show Mother and Father where the pee-pee place is.’

‘You go,’ Rafo said. ‘I’ll wait until I get things sorted out here. Come back and find me.’

Gine gave Mela a look of despair. ‘Would you mind helping? We’ve asked an awful lot of you—’

‘No problem. I could do with finding the pee-pee place myself.’ She bent down, held out her hand for Hael to take.

But he stood back. ‘Big boy now.’

Vitae smiled a brilliant smile.

Vitae walked them into the interior, away from the fence. Mela saw that he was leading them roughly eastward.

As they moved further into the camp’s big circular space, the crush by the gate lessened a bit.

But still there were crowds everywhere – and, not much more than a few paces in, they saw places where people had already camped out, more or less. Mela found herself stepping over blankets and sleeping bags and heaps of belongings. People stared as the strangers passed, helplessly, protectively, aggressively. There were many, many children. Most of them looked bewildered and scared, even when tired adults tried to distract them.

And as they walked deeper into the camp the air turned sourer, Mela realised. There were smells of shit and piss and vomit; of old food and damp; of dirty wet clothing. The smells of people penned in like overcrowded animals. She longed to cover her mouth. Soon, she told herself, she would smell just as bad.

And *this was Procyon*, her home city just a short walk away.

She murmured, 'I wonder who all these people are. Or who they *were*, yesterday, the day before. What they owned, who they knew, what their plans were. Now—'

'Now we are all the same,' Vitae said. 'Everything stripped away, leaving us equal, as when we will stand before eternity.'

Gine snorted. 'Tell it to my husband.' She glanced back.

Mela murmured to Vitae, 'I wonder if having a Permit makes it easier. Even if something has gone wrong with it. Like Rafo. As long as he has that document, or at least he thinks he's owed one, he has hope of everything working out in the end. With a Permit you aren't an Immie, at least.'

'I suppose some people think like that,' Vitae replied. 'But, look – you have a Permit. Even if it was valid, would it make you feel any better now?'

'No,' she said, thinking it over. 'No. Because even if I got out of here, even if I got all the way to Sirius – there's just a few more years – twenty, isn't it now? That's all. And *that's* what we will all have to come to terms with. That's what I've been feeling today. As if it's suddenly become real.'

'As if you woke up for the first time,' Gine said. 'While the rest of the world is still asleep.'

Vitae nodded grimly, kindly.

As they walked, out of the melange of stenches around Mela, a sharper sewage smell became more dominant. And cleansing smells, of some kind of bleach perhaps.

They were approaching the fence at the eastern side of the camp. It had the same set-up as near the south gate, with the Guards in face masks on their protected parapet. They made elaborate hand-waving gestures as if clearing the air, and looked down into the camp and pointed, sometimes laughing uproariously.

As she approached Mela saw why. The area below this part of the fence was the latrine.

She had to look past the crowded rows of people, squatting or standing over trenches, to see the pattern. Ditches had been crudely cut in the earth, each running east – all the way to the fence there and then under it, she saw. Planks had been laid over the trenches, planks with holes gouged into them. She thought she saw running water in the ditches under the planks, sluggish, rank.

An open-air lavatory. In use by adults young and old, by children. The little ones had to be held over the holes in the planks.

Gine looked down on this in utter dismay. 'By Andromeda's mercy. Sorry, Perseid. It's just – is this all there is?'

Vitae seemed unperturbed. 'It was worse a few days back. When I first came out here, to see what they were arranging here, there was *nothing*. Oh, the wall and the Guard positions had been set up, very efficiently, no doubt. Effective at keeping people in. But there was *nothing* otherwise. Not even a latrine. So we had to sort it out for ourselves.'

Mela looked around. 'I'm starting to see it. The latrine has to be on this side of the camp, because the River is over to the east, beyond this wall, and that's where the latrine drains to. But what about the running water? Fresh water?'

'From a header tank that used to serve the city itself, out to the west. They provided that, at least. We wanted the western wall area to stay hygienic.' Vitae pointed over the heads of squatting people. 'So we asked for the food drops to be over on that side. We have a rough sanatorium set up over there too. *Very* rough. Don't get your hopes up. We have whatever medicines we walked in with and are sharing, improvised gear like blankets and bandages, even splints that we clean for reuse. We have some doctors, nurses, though most of *them* have Permits, along with other useful folk. Some volunteered to come in here even so, when they could have got away. People have good hearts.'

And Mela wondered how much of this was down to the good heart of the preacher himself. He must have been sorting this out, even as he was running his Immie sanctuary in the south. She reached out, squeezed his hand.

He actually blushed, and looked away.

Gine smiled. 'Come on,' she said to her children. 'Let's get you to the toilet with all these nice people, and then we'll get something to eat and drink, and then we'll go find Daddy again, shall we?' She put Aphe down on the ground, took both her children's hands, and they walked down towards the latrine ditches.

Vitae eyed Mela. 'Need to follow them in?'

'Sort of.'

'Which means yes. Come on, I'll walk you in. One tip.'

‘Yes?’

‘Don’t make eye contact.’

That made her laugh, a laugh that kept her going until it was over.

Evening settled softly over the camp. The Thousand Earths began to show, aloof, uncaring.

And as the dark deepened, the camp seemed to calm, subtly. A thousand people – Vitae said – jammed in together, with here and there a lantern of some kind showing. No fires, though: fires were prohibited by the Guards for safety reasons; they would come and stamp out any nascent blaze. That policy wasn’t going to help when cold weather came, Mela thought – if the Perimeter advance allowed them to get that far.

The murmur of a thousand voices, with here and there an individual standing out: a cry, a laugh, even a scream. And, Mela noticed, as the last light faded, there was a slow drift of people to the western walls.

It was not quite fully dark when the food deliveries began, over by the south-west wall – nearly the full diameter of the camp away from the latrines, as Vitae had said. By lamplight, one group of Guards hauled food packs up from outside the wall, then lowered them down inside to be accepted by more Guards.

Mela had seen queues building up there earlier; now she understood. With the distribution controlled by the Guards at the base of the wall, it was first come first served – and more often than not, Vitae told her now, the food and other goods ran out before the queues were done.

As the distribution began, Vitae himself led the family over, Rafo and Gine and the kids, leaving Mela to look after their few possessions. Vitae said that without any kind of documentation system working inside the camp, the Guards would only hand out packets of food – if they saw palms free of the day’s ‘food mark’, a different colour for every day. You got your packet, your palm was marked. So when they all came back with food packets, the kids proudly showed the blue stripes on their palms to Mela, like the one in Vitae’s growing collection.

Mela went over and took her turn in the line. By now, she saw, the heap of ration packs at the base of the fence was growing visibly smaller. People had become anxious, on the edge of aggression. Perhaps the obvious brute strength of the Guards was all that kept a riot at bay here, she thought.

But now, as she neared the front, she saw a handful of the Guards, down from the fence, working through the crowds, each carrying away a sack of what looked like ration packs and other provisions – medicines, perhaps, bandages.

And she saw furtive transactions. Immigrant and Guard approaching each other, each glancing around, an exchange. A ration pack for glittery stuff, jewellery perhaps, what looked like precious ornaments, once even a fine pair of shoes. Or just cash. And a few times she saw Guard and Immigrant disappear into the shadows of the wall. These couples were opposite sexes, same sex. One Guard seemed to try to lead away a child, but adults around him pushed back. Other Guards close by didn't intervene.

But at least they hadn't helped the child-taker.

Watching these subtle horrors, Mela found herself thinking of her brother. Wondering where Tabor was. What he was doing right now.

Mela got her pack and a stripe on her hand. Then, with some difficulty in the gathering dark, she found her way back to the little area Vitae had come to call his home, where Gine, Rafo and the children, with Mela, had been invited to stay. The man was like a lamp attracting harmless moths, she thought. But as the light faded further, Mela thought she probably felt as safe here as she would anywhere, surrounded by friends and acquaintances of Vitae. She hoped.

The day was over at last. She tried to sleep.

In the pitch dark, she was woken by rain splashing on her face.

There was no cover for anyone save the Guards on the fence. All around the camp, people were moving, grumbling, digging out water-resistant gear. Vitae, Mela and the parents pushed together, holding their coats over their heads to make a little shelter for the children, who seemed to think it was all great fun.

Mela fell asleep leaning against the Perseid.

Mela and her companions lived for four full days and nights in the camp. Mela, following some ingrained habit, counted the days, from day zero, when they'd left Procyon.

On the evening of the fifth day, the Guards walked around, shouting that the camp was to be emptied the next day, that they would all have to move

out and away from Procyon. They were to go north for a hundred days, following the course of the River, with a target of five kilometres a day. That was what the Guards said. A hundred days' walking. Five hundred kilometres. Mela needed to start to count the days again.

Walking to where, though? She felt dismayed about how little of the world there was north of here.

The next morning they were woken by Guards passing through the camp, shouting, ordering people to pack up and get into a column.

It took hours before they were ready, before the slow shuffling march began.

That was the sixth day since the effective death of Procyon. And the first day of walking.

The mornings were the worst.

Mela, on waking, kept her eyes jammed shut as long as she could. But that didn't keep out the world, of course.

You couldn't shut out the crying.

Some of the children cried, softly, all night. Some of the adults, too. Although that was lessening as the days wore on, she suspected, as the children were weakening, succumbing to some illness or other, or just to the hunger. Some of the adults too, the elderly, the frail. Weakening, quieting.

Too weak to cry.

And she couldn't shut down the counting in her head.

*A thousand people*, more or less. That was how many they had started out with, according to the Guards.

*The fiftieth day*. If what the Guards told them was true – and if what *they* had been told by their officers was true – then they were halfway there. Two hundred and fifty kilometres north of Procyon.

She had a map of the world in her head, as best as she could put it together and remember it all.

There was the north-south course of the River they were following, emanating from its source in the Heartland Mountains at the centre of the world, where it was overlooked by proud Sirius on its summit. Her mother had told her how she had once seen a huge dam high in those mountains, where the waters were held back and controlled, to nourish a swathe of agricultural land below. But beyond that the waters gathered again, and the River flowed south, spreading and branching, gathering in tributaries, as it crossed the lowlands, the Provinces of the Empire ...

And, all of five hundred kilometres from its source, the River pushed across a boundary Mela had not seen before, and out of the Provinces

themselves and into the region known as the Hinterland.

‘Where,’ her father had once told her sourly, ‘you pay your taxes as *if* you were in the Empire, but get none of the benefits of being *in* the Empire.’

Still, you were protected by the Empire’s mighty forces, in theory. And if you were a landowner you were paid handsomely for selling the produce of your farms to the Provinces, for the heart of the Empire had little agricultural land of its own ...

Procyon, Mela’s home city, had been situated roughly at the boundary between the Hinterland and the terrain further south, which the imperials had called the Uncivilised Lands. Procyon was far enough out, her father had once told her, not to be subject to full Hinterland taxes, but close enough to get some of the benefits of the Empire, notably the general peace enforced by its army. Which was why, he said, some smart ancestor of theirs had chosen to live at Procyon, half inside the Empire, half out ...

All gone now.

Meanwhile the broad River swept on down the shallow slope of the shrinking world continent, and the Immie column walked steadily north, against the flow.

Soon they were walking deep into the supposedly rich farmland of the Hinterland – only to find much of it stripped already by citizens fleeing ahead of them, into the Provinces, even the inner imperial terrain.

And the Immigrants’ own target, it turned out, five hundred kilometres north of Procyon, was the boundary between the Provinces and the Hinterland. So they were eventually told by the officers, commanding the ragtag city Guards who walked reluctantly with the Immies. There they would find a camp, they were told. A welcome. Mela was coming to suspect that was an empty promise, but they had no choice anyhow.

Five hundred kilometres north of Procyon, then. A hundred days’ march, so it was estimated, for a shambling group like this that would barely be able to make five kilometres a day.

Five kilometres: a distance Mela could once have covered in a couple of hours or less. But she quickly learned that there were people in this group for whom the daily walk was an agonising torture: the very old, the very young, the disabled, the ill.



And as she reluctantly surfaced from sleep at last, and heard the first crying baby of the day, Mela, not for the first time, wondered if they were actually meant to reach any kind of destination at all.

This was the fiftieth day, of at least a hundred.

The mornings were the worst.

As she started to stir, stiffly, she heard movement, soft calls.

A foreground of babies crying, children whispering, softer adult voices. Somebody coughing. *'Give us a hand with this ...'*

She sat up, reluctantly. She was stiff, as usual, and cold. Every night there was a dilemma whether to heap her spare clothing on top to keep herself warmer in the night – where it was more likely to get stolen – or lie on top of it, where it was safer, and cushioned her from the hardness of the ground underneath her, but she would lie there shivering. Neither way fully worked – even though she had more clothing with her than when they had left Procyon for the last time.

When people died, or just dropped out and wandered off, their belongings were shared out, the pick of it going to the Guards, the rest distributed, with luck fairly and without dispute, under the eye of the Perseid – or, increasingly, overseen by Mela herself. As people got to know her, they seemed to recognise a certain authority about her. It wasn't just her closeness to the imposing figure of Vitae. She had been born a Magistrate's daughter, and she was still a Magistrate's daughter, apparently. Even if she was as helpless as the rest.

Now she gathered her clothing into a neater heap, ready for bagging up in a pack on her back for the day's walk. Took a sip from the flask of cleanish River water at her side.

Then, finally, she looked around, away from her own little nest.

At the river bank a group of people were digging, with the short spades they had carried hundreds of kilometres already, digging as they did every morning, in the soft ground close to the water. The Perseid stood calmly by as they worked, exhausted-looking himself, his green robe liberally smeared with River mud and other detritus.

A couple of Guards worked with them too, though probably not out of good will: just to get it done, get the march started. It was strange to think that Tabor could be among these reluctant escorts. If her brother was here,

he hadn't shown his face to her, not once in all the days that had passed. And on the whole, she thought, she'd prefer not to look for him, in case she found him.

These people, Guards and walkers, were digging graves, for the night's fallen.

You dug graves in the morning because most of the deaths came in the night, in the cold and damp, as they had quickly learned. Mostly the very young who, hungry and exhausted, fell sick easily, or the very old who could walk no more, who could no longer be carried. That or victims of the diseases that seemed to run through the walking group with increasing regularity.

They had one trained doctor, a young, nervous woman called Selta, who had somehow failed to get the Sirius Permit her profession should have qualified her for. After a few days she had introduced herself to Vitae and Mela, as the nearest thing to authorities among the Immies. 'I want to help ...'

Selta had already been working hard that morning. She said that aside from the wear and tear on their bodies and the physical injuries, probably most of the infections that ran through the camp had been brought with the migrants. And this huddle of people was perfect for the spread of such infections, with the nightly confinement in the open air, the cold and inadequate food, the endless walking.

Mela deeply admired Selta. She was as vulnerable to illness as anybody else, her training was obviously incomplete – she had barely any resources – she was young, weak, alone, terrified most of the time. Yet she did try to deal with the stream of patients brought to her every time the column halted, usually very young or very old, some of them already dead.

Now Mela shook her head, trying to clear it, to wake up properly. She took another sip of water, closed up her bag.

Then she rose, stiff and cold, in the clothes she had lain down in last night, and went to join her friends, Gine and her family.

Only to find the day's problems had started early.

The little family was in a sort of listless turmoil.

Rafo was missing.

Probably he was over at the River taking his turn to dig the graves, and had forgotten to tell his wife. The children, subdued, huddled up against their mother. Gine herself just sat, eyes closed, one arm around each of the children.

Mela pinned a smile on her face. ‘Hello Hael, hello Aphe. Did you have nice dreams?’ Wide-eyed stares. Hael was sucking his thumb, and Mela was sure he was too old for that habit. ‘I had another nice dream. It was about ... an aurochs. A baby aurochs called ... Hael. Same as you, Hael!’ Silent stares, but they were listening.

Continuing to improvise her story, Mela rummaged in their mother’s pack, found a couple of dried biscuits, handed one to each of the children. They both wolfed them down, licking crumbs from their palms and fingers. Mela remembered Gine telling her that Hael was a fussy eater. Well, he had been cured of that.

Then, tentatively, Mela touched Gine on her shoulder, then her cheek. She didn’t react, other than to stare back at Mela. The cheek felt clammy, too hot. Mela suspected that Gine was having trouble with her third pregnancy, though she had said nothing about it. Maybe so as not to worry her husband and kids, maybe because she couldn’t face it herself. Maybe because there was nothing to be done about it. It had been an accident. Terrible timing. Gine had kept it secret as long as she could, even from her husband.

But Mela had to think of herself too. Or at least her duty to others.

She walked down towards the River and the morning’s improvised cemetery. On the way she rummaged in her own rough backpack, found a half-finished ration pack, wolfed down the food. It was nothing but unprocessed smartcrop, but, she had learned, when you were hungry enough even the sodden pack the ration came in, itself edible, tasted delicious.

And when she felt she was far enough from the night’s camp, and thought nobody was looking, she dropped her trousers and pants and squatted. Nothing civilised about that. In the early days, she never would have imagined that she would look back at Vitae’s improvised latrine at the assembly camp with nostalgia.

Her urine stung, her shit was loose, dribbly – more so than yesterday, she thought, and she worried about early signs of some infection or other. Then

again, she worried about that most mornings and she was still walking so far. She dried herself with a scrap of cloth, one of a wad she kept in a pocket for the purpose.

Then she walked to the River itself, rinsed her hands in the shallows, and headed for the morning's cemetery.

A half-dozen graves today, she counted quickly. Six pits being dug by a group of walkers, all but one of the pits child-small. And a row of bodies nearby, roughly covered by sheets – one cover that looked like it had once been a curtain, heavy, crimson, expensive. A foolish thing to bring, she noted absently. Curtains! That was people for you, never accepting the reality of the situation. But the curtain had found a use, in the end.

She walked up to Vitae. The green hem of his now tattered robe was largely obscured by mud and blood. He looked exhausted, and he barely acknowledged her.

She took the spade from his gnarled hands. 'Come. Sit down with me.'

He walked a few paces back, then gingerly lowered himself to the ground. 'I'm sorry. I'm sorry.'

'Don't be. You're trying. Everybody knows that. We all do what we can —'

'But I am so old and feeble and foolish that I cannot do what I *must*. Not any more. Look at these graves. The size of them. We bury babes,' he said bitterly. 'Babes who have barely opened their eyes to this world, before it has betrayed them. And we bury the old, worn down by life, destroyed by this monstrous migration. We fold up their worn bodies to fit into smaller pits in the ground, to save a bit of digging. Folded up as if they were returning to the womb.'

'What a betrayal. We do what we can.' He was growing angry, his feeble frame twitching, his face red. '*And yet we do not return them to the Substrate*. We do not, we cannot, for there is no deepshaft here.' He looked up at her. 'Do you even know what I speak of?'

Steadily digging, still stiff from yesterday's walk, she found it hard to try to take in the ranting of an old man – even such a man as Vitae, who had done so much for so many. *I just took a shit in a field*. And they had had this conversation before, or variants of it.

'I told you,' she said, as gently as she could, 'I have seen funerals. I mean, proper ones, back home. In Procyon. I was very young at the first ...'

Like Aunt Vaer's. They had seemed rare events, then.

'Then you must have seen the deepshaft. Every town has a deepshaft, at least one. That is why the towns are where they are. They are built around ancient deepshafts. *The deepshafts came first.* Our world is a made thing, a thing of layers, of Substrate and rock and earth, and the air above us – a made thing! Like all the Thousand Earths. And a deepshaft is a puncture through the basement rock of this Earth, all the way down to the Substrate itself.

'You have seen funerals. You have seen the Perseid rite, then. You saw the body committed to the deepshaft. And *that* is how Perseus himself taught us we should venerate the dead. By committing them to the Substrate, the deep soul of the world, where the Avatars will sing their memory for all time. And I – I—' He sighed. 'You humour the sad old man. You know all this. But the fact remains – if we are not committed properly to the Substrate, then when we die, *we are lost.* Lost for ever. All of it – all that is you – all your memories, all your loves and hates and rivalries, all you have learned, all you have achieved – gone! Like snuffing out a flame.

'Now, look at them, look at us. These people, turned into Immigrants, thrown out of the towns like trash. And this is all I can offer them. A hole in the dead ground ...' And the anger seemed to run out of him, like pus from a lanced wound, she thought. He stumbled, fell back in the dirt.

She held his hand. 'It's all right. Take it easy.'

He breathed heavily, but seemed to calm, slowly. She saw his face was streaked with tears. 'I am sorry. I'm burdening you, Mela, daughter of the Magistrate. Everybody burdens you.'

*Well, then. What is the right thing to say to this poor old man, weeping in the dirt?*

'I'll try,' she said at length.

He was puzzled. 'Try to do what?'

'I will try to get you to a deepshaft, when you die. I promise.' She forced a smile.

But he looked away. 'You shame me. I burden you with my weakness.'

'No. You helped me when I was lost and weak. Back in the city, in that dreadful assembly camp. You were the strong one then.' She shrugged. 'Now it's my turn. You rest. I'll finish this. Then we'll go back to camp, and get ready for the day.'

He stood unaided, nodded curtly, and brushed himself down. Then he waited for her to finish the last grave of the morning.

As usual it took much of the morning, half the day, before they had even loaded up for the day's walk. That was one reason, Mela saw, they made so little progress in the march itself.

The Guards had planned for it, though. They, or their officers, had *known* it would be this way. The folk wisdom of the Guards, she supposed, passed down the line, lessons no doubt learned from the abandonment of towns lost long before Procyon.

Every day, even as she tried to pack up her own gear, and help Rafo load Gine get the kids ready for the walk, Mela found herself glancing around the night's sprawling camp site, trying, basically, to ensure that nobody else was struggling without help – even, that nobody was left behind. She knew she probably failed. She tried anyhow. She was the Magistrate's daughter.

Today Mela found one sad old person, alone, left behind, sitting in the dirt, who had discovered that today was the day she was no longer even able to stand. And so, her family had left her where she sat. Now Mela helped the old woman to her feet, and, with luck and the kindness of strangers, found her a place to sit on a crammed-full cart.

Meanwhile the mechanically inclined checked over the carts, fixed them up as best they could. Every day or so one of the bigger carts would throw a wheel, or fail in some other way. These vehicles had all been designed for serving a city, the vanished city of Procyon, built to ride over cobbles or pavements rather than through thick mud or over broken ground, and designed for only short journeys, not for this transcontinental trek. Like the people they carried, the carts were slowly breaking down.

And, of course, from the beginning, people had had to haul some of the carts – not enough horses. There was a rough rota, and Mela found herself drawn into arguments about that.

She always made sure she did her own share of the pulling. While the Guards walked or rode in comparative luxury, with their well-sprung carts and their healthy-looking horses.

Finally, they got the people and their grimy luggage and everything else loaded up, their remaining horses harnessed, and everybody else was either preparing to haul or ride, or walk behind the caravan.

To whistles from the Guards, the procession started up.

The walking began.

If she had believed in Perseus, Mela sometimes thought, she would offer thanks for being twenty-two years old and reasonably healthy when this crisis hit.

But this morning felt particularly fraught. Parents dragged screaming children. An old man fainted after just half an hour of walking, and he had to be found a place on a too-full cart. Then a little kid stumbled and had her arm crushed under a cart wheel, and Mela and Selta and the kid's father had to stand out of the procession to splint the break ...

And, this morning, Gine was a particular worry for Mela. Gine was dizzy now, her stomach cramping. She had swallowed only a few mouthfuls of food – a smartcrop soup – before vomiting. Rafo looked on helplessly, holding his kids, who both looked scared to death. Selta the doctor, after a hurried examination a couple of days ago, had diagnosed morning sickness. But she had no way of confirming that, and no way of treating it. Well, Gine had been unable to walk further, was in obvious discomfort and pain, groggy from lack of sleep. She was found a space on a cart, but Rafe, already doomed to walk, had to bring his two kids as best he could.

Mela did what she could to help, even carried one of the kids for a while.

And then, halfway through the afternoon's trudge, came something different.

With the Immigrant column still in motion, old Vitae cautiously clambered down from his wagon, took Mela's hand, and drew her away from the caravan, heading towards the patient River a few hundred paces away.

Overwhelmed by duty, distracted by Gine, Mela half-heartedly tried to pull back. But Vitae quietly insisted. 'A break from this will do you good. And there's something I want to show you. A couple of things, actually ...'

So, she gave in.



As the noise of the Immie caravan receded – as Mela found she was able to stride out a little more, rather than shuffle along at the pace of the feeblest – she actually started to feel healthy again. *Young*, even. As if unburdened by the fate of a thousand people ...

She had to smile. She slowed, to let Vitae catch up.

‘Maybe you’re right,’ she said now. ‘About the break.’

‘You don’t get as old and pompous as me and not be right *some* of the time. I do watch you, you know. I know how hard it is to be the Magistrate’s daughter.’

‘I don’t know what I’m doing half the time. I feel such a fraud.’

‘No. I’ve been with you, remember; I’ve listened to you. You bear an adult’s burden, but you are barely grown yourself. The adults have let you down.’

She snorted. ‘Feels to me like the world has let me down.’

He raised his eyebrows. ‘A not uncommon perception.’

They approached the river bank now, Vitae wheezing slightly. Mela saw a boat, or a barge, upstream, hauled by a couple of huge horses – slowly heading their way.

Vitae said, ‘But even if it is betraying you, the world still has plenty to show you yet. Look beyond, to the far bank. Halfway to the horizon, it looks like to me, but my eyes, my eyes ...’

And now Mela saw it. A city, surrounded by the sprawling green of smartcrop fields. A city built not of the stone and smartwood she had grown up with, but of some material so brilliant white that it shone in the diffuse daylight.

‘I ... That’s astonishing.’

‘It’s called Vega.’

‘Ah. I think my mother had business there. Her business with the Empire. I never saw it before. That brilliant white. What is it?’

He sighed. ‘Vega is built of a stone mined only in the Heartland Mountains. It’s referred to as *marble*, but I suspect that is a very old name that has been misapplied. Perhaps true marble does not form here ...’

‘It makes the towns downstream, even Procyon, look – shabby.’

‘Indeed. Tell me now. What else do you see?’

She thought it over. ‘No people. Nothing moving. This town has been abandoned too, then?’

‘So it has. Not even the great cities of the Empire itself will be spared the Tide, when it rises sufficiently. Even as the Hinterland is being devoured ...

‘Our history is deep, and mostly unknown, and probably will never be known before the Tide has erased it all,’ he went on as they walked. ‘We know that Sirius was once just one of several city-states established in the Heartland Mountains. We know that through a series of wars and conquests – and, it is said, through the theft of the tomb of Perseus himself – Sirius came to dominate all the peoples of the Heartlands. Then, gradually, they came to monopolise the upper reaches of our River, said to be the greatest in the world – though other rivers must reach out from the mountains to the Perimeter.

‘And Sirius used its River, that great waterway, to extend its reach. The Sirians built roads, following the water, all the way to where the inhabited lands gave way to the plains where the animals still roamed, the aurochs and the horses, and the raptor birds that preyed on them, and the mark of humanity all but faded out ... All the way to the Perimeter, as it stood then. This was some five hundred years ago; the Perimeter was thousands of kilometres away from the Heartland.

‘That was when the Empire was declared, with hegemony over all of this Earth.

‘But there were rebellions. Wars. The Empire needed to establish fortified frontiers, buffer zones. It needed structure.

‘So the Emperors drew great circles around their core. The first was five hundred kilometres in radius around the Heartland itself – the boundary of the Provinces. Then a second circle, five hundred kilometres further out yet – out to where Procyon would one day stand. That designated the limit of what they called the Hinterland. A vast farming resource in good times, a buffer zone in times of invasions and rebellions.

‘And beyond the Hinterland, beyond Procyon, the Uncivilised Lands. Left to the uncouth, and the wild animals in their mighty herds, the aurochs, the horses. They built nothing there but roads, hunting lodges, and army marching camps.

‘But as the world has shrunk, so has the Empire’s reach. As the Perimeter drew inward, as the world crumbled from its edge, the Empire drew back, moving its armies back into the Hinterland. And it abandoned the marching camps beyond.

‘But those communities didn’t die out. The camps. Soldiers had lived there, some for generations, with their wives and families. The camps became towns, called Rigel and Capella and Arcturus and Polaris and ... they dug up the old military roads and used the stone to build churches and town halls and parks and homes. Even at proud Procyon. You and your family. Me.’ He smiled wider. ‘*Us.*’

‘The rubble of history,’ she said. ‘That’s what we are.’

‘You see it now. But, rubble? Never! We made our own history.’

‘Why wasn’t this taught at schools?’

‘Well – you aren’t a parent, yet. Would you want your child to grow up under such a shadow? Knowing that our homes were essentially abandoned soldier camps?’

‘If it’s the truth ...’

Now a ribald voice called from the river boat. ‘Who are you calling rubble?’

Mela whirled to see.

There, standing at the prow of the boat, was Khem. Khem, daughter of Farrell the Perimeter Warden.

And beside Khem – a younger woman, a face that didn’t quite fit at first –

‘Ha!’ the younger one cried. ‘She doesn’t remember me! But I remember you! In Procyon! When you were saving me from the aurochs!’

Mela just stared. ‘*Peri?*’

The boat drew in cautiously. Then, with startling grace, both Khem and Peri leapt over to the bank.

They held back for a heartbeat. Then Peri and Mela hugged.

Peri said, ‘Did you really not remember me?’

Mela stood back. She did remember that incident, sharply. Who wouldn’t? But she had still thought of Peri as a lively six, seven-year-old. Now she was seventeen, she supposed, not tall, her dark hair swept back. Lively. Smiling. A young adult in an old world, Mela thought sadly. But she said, ‘I remember.’

Khem held back, huge, patient, clad in heavy waterproofs, her hair cut short. ‘You’ve got another think coming.’

Mela laughed. ‘Answer before question? If I *think* I’m getting a hug from you ... What are you *doing* here?’

Khem gestured at Vitae. ‘Well, this old fool saw how you were all struggling. Limping your way through the Hinterland. So he sent a couple of messengers ahead, to see if there were any boats available to ease the strain a little. Rafts, barges.’

‘And they found me,’ Peri said. ‘My family saw all *this* coming, and tried to find a place upstream. I got fed up and ran away. I tried to get back home. I missed my friends. But my home was already lost to the Tide. I didn’t understand, not then. Now, well, I try to be a – contact – for Immies coming upstream. To help them. Sometimes there are places they can stay, or there is spare food or medicines. When they mentioned your name, Mela – some of them said you’re leading this march—’

‘I wouldn’t call it leading,’ Mela said.

Vitae snorted. ‘I wouldn’t even call it a march.’

Peri said, ‘I promised you, Mela. You saved me, from under the feet of that aurochs, in Procyon. And I said that when you needed me, I’d be there for you, didn’t I? And here I am ...’

‘Don’t forget me,’ Khem said gruffly.

Mela looked at the boat, which had come drifting downstream. ‘If you have even a few boats we could save dozens of lives.’

Khem said, ‘Funny you should say that. My father is already driving them down. I can only take a few, mind. Some of the old and the little ones and the sick ones ... I know what it’s like for them, the walking, walking ... I don’t want my paintwork messed up, though.’

And then it got through to Mela, somehow. Worked through her defences. She felt a kind of warm relief wash through her. ‘You remembered us after all these years. Both of you. You did all this to help *me*. Oh ...’ Suddenly she felt breathless. She had to squat on her haunches, roll into a ball.

Vitae bent stiffly and rubbed her back. ‘It’s all right, dear Mela. Take a moment. I know how this has been for you. You aren’t responsible for everybody, Magistrate’s daughter or not. *You aren’t alone*. None of us is alone. We help each other. When the authorities that are supposed to care for us turn away – when the world itself breaks down around us – we have each other.’

Mela nodded, trying not to scream, or laugh hysterically, or burst into tears.

‘We can’t give you much,’ Khem said, warningly. ‘A few boats and barges – I know there are hundreds of you.’

‘You’ve given us hope. Come on, Vitae. Back to the march. We’ve got some sorting out to do ...’

So that was a hopeful afternoon, an uplifting moment, for Mela.

But night came, and another day, and another night.

And another, and another. The heat of day, the cool of night. The smell of unwashed people, of vomit. Babies crying in the dark.

Each morning, more deaths, more graves.

One day the column was raided, by bandits who came by in fast-moving carts. They snatched packs, slashed randomly at people, abducted a few of the younger women, girls, some of the boys. Guards and walkers banded together to beat them off as best they could – Khem swung her huge fists. The bandits retreated, laughing, with their struggling captives.

In the quieter times, trudging by day, trying to sleep at night, Mela had too much time to think.

Sometimes she envied her parents, for growing up in a better time than *this*. A settled time, an easy time.

And she tried to tell herself that the Immigration itself wasn't inhumane. Individual Guards could be cruel, evil. But even their inhumanity came from the shrinking of the world. A superhuman force.

On clear nights she would look up at the Thousand Earths and wonder if this misery was replicated across them all. All people could do was try to cope with the world they found themselves in, she supposed. To help the people around them.

The nights became quieter, because the surviving children were too ill or exhausted to cry.

After a little more than a hundred days' forced march, the Immigrant column reached a city willing to tolerate them. A hundred kilometres south

of the border between the Hinterland and the imperial Provinces proper – and much larger than Procyon – it was called Deneb.

That first day, Mela and her companions settled here as best they could, in a half-abandoned suburb at the town's periphery. The building she shared with Vitae and Gine's family was unheated, cold, dark, looted. But there was a roof over her head for the first night in a hundred. She slept deeply.

The second morning was particularly bright, the sky clear, and Vitae encouraged Mela to walk out of town a short distance. And he pointed north, at the land that stretched away under a blue, cloudless sky.

'The world is flat,' he said now. 'All the Earths are flat – you can see it in the sky. And so, if the air is clear, there is no *limit* to what you can see. Look, now. See the line of the River – you are tracing it back to its source. There are clumps of smartcrop, those grey-green patches. Further, a dark smudge ...?'

'Another town?'

'Possibly. Far from here if so. The detail is washed out by the thickness of the air, but when it is clear and dry, free of moisture like this ... *There*. Do you see? Right on the horizon? If I can see it with my elderly eyes—'

'A lumpy mass, grey. Clouds?'

'Not clouds. See the sharpness, the gleam of white ice at the summits ...'

*Summits.*

Then she had it. She was staring across a gap of six hundred kilometres. And she was seeing the Heartland Mountains, like an island of rock. She was seeing the hub of the world.

They stared until their eyes were sore. Then they returned to the town, to their work, to the labours of the day.

Seven years passed.

John Hackett

c. AD five billion years



Coming out of coldsleep had got harder and harder for John Hackett, as the latest flight of the *Perseus* had gone on.

Maybe it was because at each waking interval his body had aged that little bit more. Or maybe the mechanisms of the ship itself were wearing down – a ship now fantastically ancient, even if its fabric had been saved from decrepitude, like Hackett and his companions themselves, by relativity’s monstrous compression of time.

Or maybe it was some deep animal sense of the time he had crossed. Five million years to Ambriel, and now five *billion* years, a thousand times as much. Impossible. Inhuman. True.

Now, on waking – as he always did, even before he opened his eyes – he took a deep breath, and then just lay there and *felt* the ship. Felt the gravity, the one-G thrust imparted by the immense ramscoop, sucking up that dark energy and steadily thrusting the ship forward, as it had faithfully for subjective decades now. Hackett was lying on a pallet at right angles to that thrust; it felt as if he was lying on some hard hospital bunk on Earth, and he couldn’t sense the slightest tremor in that enveloping faux gravity.

Good signs. In that first wakening, that first breath, he knew to a ninety per cent confidence level that no catastrophe had struck his ship while he had dozed away another few years. Because if disaster had come, he probably wouldn’t even have woken at all.

Next, on opening his eyes, he checked the bio displays built into his pod.

Everybody was still alive, according to the displays tracking Rava Pogee and Icsoba of Ambriel. In fact they were both up and moving already, he saw to his irritation, before him and in defiance of ship rules. It was his ship, his rules, though you wouldn’t know it.

His own med display showed he'd had a kidney transplant a billion years ago. Hell of a thing.

Other displays, relating to tech installed or modified by Rava Pogee, were more enigmatic. On boarding the *Perseus* for the first time, Pogee had insisted on running her own overhaul and upgrade of the craft, 'before we go further than the damn Moon in this tub', as she had put it. Pogee was from an age advanced over Hackett's, but not impossibly removed like Icsoba's home time. For sure the three coldsleep pods they had cannibalised from Pogee's ship, self-repairing, even self-improving, were far advanced over the original technology in the trusty *Perseus*. Hackett just put up with it all.

As for Icsoba, *Perseus* was just another gift of the deep past, like the useful stuff her people had been digging up for megayears ...

*Five billion years, though. What are you doing here, Hackett? Run far enough yet?*

Yes, but run from what?

As often on waking, he felt a kind of deep self-doubt. Probably a side-effect of the sleep meds, he thought. It soon wore off. Introspective angst always came far down his list of priorities. He was here; this was now; he had work to do.

'Still alive.' His voice was a scratch.

*Diagnosis confirmed*, said a smooth automated voice.

'Shove it, smart ass,' he snarled softly.

The lid rose, revealing a soft cabin light.

He raised his arms, experimentally. Lifted right leg, left. Turned his head to left and right; only a minor swimming, fainting sensation.

Then, cautiously, carefully, he began to lever himself up from the bed. He knew that automated restraints would snap down to support him, contain him, if he proved unable to make it.

He got to his feet, stumbled naked towards the bathroom.

For sure he was glad not to be alone, he thought now, no matter how irritating his companions were. Having lost his crew on his first baby-step five-million-year jaunt to Andromeda, he knew he probably couldn't have made this astounding onward journey without company of some kind, let alone without Pogee's upgrades; he was human enough to recognise that.

‘But you’re still mine, all mine,’ he said, as he pushed closed the shower-closet door behind him.

*Exfoliation, sterilisation and sanitation proceeding*, the ship replied.

He was immersed in a cloud of steam that dug into his every pore.

‘Mine! All mine!’

When he was cleansed, checked over, injected, fed and watered, he made his way to the ship’s bridge.

Where he found two old people gazing out at a sky littered with stars.

The bridge was darkened, the better to see the view. Hackett was aware that his reflexes were off, his vision adaptation probably sluggish too. So he made his way cautiously to the left-hand seat of the row of three chairs under the thick transparent canopy – the left seat, traditionally the commander’s seat, one relic of his own cultural background that he had simply refused to give up.

He glanced over at his companions, both strapped in, both with loose blankets over their legs – and both sipping from cups through straws. Icsoba, sitting in the centre seat, looked like a child between two adults.

They barely looked back. Even on this latest waking from another decade-long sleep. No surprises, after all. Nothing to report; nothing to say that the instruments couldn’t tell him. They had long since given up asking how each other felt.

A panel opened in the compartment in front of Hackett, and out slid a tray with a cup and straw for him. Some kind of medicated glop. He sipped it, paying it no attention, while peering ahead.

At a star field, where the Solar System used to be – hopefully, anyhow.

He immediately picked out one brilliant star, straight ahead, with a litter of lesser stars around it. In the background, extraordinary clouds, thick banks of gas and dust, glowing orange, green, yellow, lit up by more stars within, clouds that towered and sprawled. These were clouds of star stuff, he knew, hydrogen rich with heavy elements, elements themselves created by the lives and deaths of previous generations of long-gone stars.

Star-birth clouds dumped over the Solar System, a gift of the galactic collision, and where once eight planets had orbited, new generations of stars were being hatched as he watched.

And, if this *was* the Solar System, that one brilliant star had to be humanity's Sun. Familiar looking, but maybe that was wishful thinking.

'So,' he said to his companions, breaking the ice, 'sleep well?'

'Drink your drink,' Icsoba said, her voice husky.

He checked various monitors, getting the readings he expected. 'We're down to one per cent of lightspeed. Thereabouts. Which means what we see is a true image, more or less ...'

At velocities close to lightspeed, the view of the star fields around the ship had been heavily distorted. At first there was Doppler shift, so stars ahead looked bluer than natural, and stars behind redder. Faster still the stars' apparent positions had shifted across the dome of the sky, as the ship had run into the starlight – like running into falling raindrops in a storm. At the most extreme speeds their view of the whole universe had been distorted into a kind of dully glowing patch straight ahead, in a dome of darkness.

All that was gone now. What he saw out the window was more or less what would be seen by a stationary observer. The question was: was he seeing what was he supposed to be seeing?

Their token target for their five-billion-year mission had been an object half that distance away in light-years: what had been known in Hackett's day as the Perseus Galaxy Cluster. The travel-elapsed time aboard the ship, there and back, highly compressed thanks to relativistic effects, had been estimated as a hundred and sixty-four years.

Well, they had reached Perseus, and spent a decade surveying it. It was, it seemed, one of the most massive objects in the visible universe, with *thousands* of galaxies so noisy and energetic that the very gas in which the structure was immersed was itself at a temperature of millions of degrees, the whole mess glowing bright in the infra-red spectrum ...

They had gathered data that whole generations of astronomers would once have devoured. Now he wondered if anybody still alive in this remote age would even look at it.

But the view on the way back had grabbed their attention much more tightly than the spectacle of the Perseus cluster ever had. For, here and now, right before them, the home Galaxy itself was colliding with Andromeda. It was an event that was utterly dwarfed by the huge energetics of the Perseus

cluster, but the Galaxy was *home*. And there was nothing in the universe more significant for the three humans in their lonely boat.

First priority, though, had been the issue of finding their way back home. For everything was changing.

A star like the Sun swam around the Galaxy's core once every quarter of a billion years – so that the Sun and a swarm of its neighbouring stars had completed twenty Galactic circuits during Hackett's journey – or would have, if not for the collision.

And this *collision* was a thing of mists and invisible forces. Hackett knew that the chance of individual stars impacting was minuscule. But as the two spiral structures interwove, their ancient, intricate geographies of belts of stars and lanes of dust were thrown into chaos, with stars scattered and spiral arms broken up. And just to complicate the picture further, as clouds of dust and gas were perturbed, scattered or compressed, there were star-making events that had looked, from Hackett's quick-time perspective, like sudden detonations.

So during the journey, out and back, they had put together a model of the evolution of the home Galaxy, as it rotated on its own axis, and went through the collision: a model designed to track the position of the Sun, and guide them back to it through the geography of the new 'Milkomeda' – an ugly neologism they used that dated from Hackett's time. Hackett knew that at their last waking Pogee had made one final check of their model results, had tweaked their trajectory one last time, and told them that at the next waking they should find home – or if not, they never would. Icsoba had already initiated a series of automated messages, by laser, microwave, radio, sent to that target in advance of their arrival ...

And now, at the end of all those computations and course corrections: a star-littered sky, in which one bright star stood out.

'Stop dragging it out. Are we home?'

Icsoba stared out, into the muddled light, then smiled at him. 'It's Sol. We did it. We crossed five billion light-years, and we found our way home. *That is Sol.*'

'But not,' Pogee said, 'Sol as we knew it.'

'That central star has the spectrum of Sol. At least, the spectrum as extrapolated across five billion years. The Sun is hotter, brighter ... We

expected that. Sol is twice as old as when we left.'

'But it is Sol.'

'It's the Sun, yes. And we are about a thousand astronomical units out. So this must be the Oort cloud.'

In Hackett's time, a graveyard of comet cores and dwarf planets. Now he found himself looking through a veil of stars – mostly small, red, evidently newly born from a nearby birthing cloud, forming a curtain between him and his Sun.

'Stars as close as comets used to be,' he murmured. 'All born here, I suppose. You know, this reminds me of my centuries-gone childhood. Space romances, old themselves some of them, where you could fly to a dozen stars within a few days of Earth without needing a faster-than-light drive. *I wish I was a spaceman, the fastest guy alive ...*'

The others just looked at him, as they usually did when he indulged in some such nostalgic anecdote. And especially when he sang.

He said, 'So anyhow we go on in. Right? We found the Solar System. We pass through this – this star cloud. We head for the inner planets, and see what people have made of Earth after all this time.'

'If Earth exists at all,' Pogee said. 'And if anything like humanity survives. We searched, but we haven't yet found any sign. No signals, no technosignatures – no big habitats orbiting the Sun. Not even the wreckage of any.'

Hackett nodded. 'It's five billion years later. Maybe people don't make such a racket any more? We still have over sixty days' deceleration before we reach the inner system. Let's get some sleep. Some decent food. Some exercise. We download our data once more to anyone who's listening.'

'Agreed,' said Pogee.

'And then we go home,' Icsoba said softly.

So they descended into the sunlight. But they found the mark of humanity long before reaching Earth itself.

A few days after the identification of Sol, Icsoba called Hackett and Pogee to the bridge. 'There is something you must see.'

By now Icsoba had learned how to operate systems like viewers herself, though Hackett was still wary of letting her anywhere near such vital systems as propulsion.

But the images Icsoba brought up now, thrown on the smart wall, were startling.

'I was looking at the nearby stars. The babies. Just one by one, seeing if I could find anything novel. Only a few of them have planets—'

'The stars are too close together, probably,' Pogee said. 'They come too close, strip off each other's planets, or even the debris clouds where planets form—'

'I know,' Icsoba said, impatient. 'I was looking anyway. And I saw *this*.'

A star – brilliant, misshapen, with tremendous flares pushing out of its surface, its equator. Features so huge that they didn't change as Hackett watched. Frozen in time by their immensity in space.

And, a fine trace, a line in space above that distorted equator.

Hackett leaned forward, studied closely. 'It's a star with a ring around it. An artefact?' He exulted. At last, signs of people.

'And flares,' Icsoba pointed out. 'Strange ones. On the star.'

Hackett was more interested in the signs of industry.

'Not a simple, single structure,' Pogee said. 'It looks more complex. Can you magnify ...?'

Hackett looked closer at the enhanced imagery. 'Right. More like a belt of – habitats? Factories drawing power from the star?'

'I don't think it's factories,' Icsoba said. 'Or – weapons. Wait until you see the whole circumference ...'

She increased the time rate. The star spun on its axis. She handled the imaging suite pretty expertly now, Hackett noted.

And on the far side of the star, energy was lancing down, evidently from the orbital structures. Some kind of beams – particles? lasers? – that were leaking visible light, and hammering into the substance of the star itself.

The structures were platforms of some kind, with installations on their upper surface. Cylindrical installations – like cannon, he thought uneasily. Like weapons. And from these cylinders emerged those glowing beams, and the areas of the star’s surface around the beams’ touchdown points boiled, lashed, frothed.

And a pull-back showed how these battered areas were the roots of the flares seen in the longer views, material gushing into space, shedding heat and light.

Pogee swore softly, a word that the translation system forbore to interpret. ‘This very young star is yet to achieve its own intrinsic stability. I suppose if you are to – *meddle* with a star like this – now is the time to do it, as untamed energies still rage, and are easily released, or diverted ...’

Hackett frowned. ‘Meddle?’

She looked up. ‘Do you not see it? This is technology. This star is being *engineered*, even as it is being born.’

‘Engineered? By people?’

‘Presumably.’

Hackett found this hard to swallow. ‘What for? Are they lifting material from the star? But they’re not collecting any of it ...’

‘Not that I’ve seen. Big scoopships would be obvious.’

‘Are they trying to move the star, then? Use a flare like a rocket?’

‘I don’t think it’s that either,’ Icsoba said. ‘I watched for a few hours while you slept and ate ... The plumes are moved, regularly. Sometimes pointing this way, sometimes that. Granted I only saw such a move three times ...’

Pogee said, ‘Not moving the star itself, then. You’d keep a steady flare at one location if you were trying to do that ... Hmm. But why?’

‘Maybe they are reducing the star’s mass,’ Hackett said. ‘That’s what it looks like. They are extracting stellar matter, and discarding it. The star itself is the target.’



Pogee said, 'I do think it's human beings doing this. Those ... factories ... look like human tech to me. But – why? *Why* would people meddle with the stars like this?'

Icsoba said, 'We are like children crawling across an ice cap. We see little of the wider landscape, so we understand little.'

Pogee glanced at a display. 'Well, soon we may learn more. We just reached thirty astronomical units from the Sun – the orbit of Neptune. Another ten, eleven days and we should be at the orbit of Earth itself. Maybe then we will get some answers ...'

Hackett plotted a sweeping route through the inner Solar System, a path that would take them past Saturn, then Mars, and finally to Earth.

They slept some more. Alerted to wakefulness to examine each object they came close enough to see.

Saturn was a ball of gas, oddly lit by the wider curtain of young stars. Only rubble was left of Saturn's ice moons – but their dismantling had been underway even in Hackett's own time, as the water miners started their work. Certainly by Pogee's day. And there was no sign of the ice-fragment rings – gone, of course, even by Icsoba's time. Saturn looked bare.

Mars was silent to their monitors. But it had an atmosphere – thin but Earthlike, nitrogen, oxygen, not like the chill carbon-dioxide layer of Hackett's time, far thicker even than the post-industrial remnant of Icsoba's day. ... Life, then? Though lacking its two moons, the planet was surrounded by an orbital belt, clearly industrial, it seemed to Hackett – gritty habs, presumably built of metal and asteroid rock, or maybe Mars's moons had been plundered. But the habs were relics, evidently, inert. If anybody saw the *Perseus* pass, there was no signal, no intercept.

But at their closest approach, Hackett saw, to his surprise, that Mars was green. It was mostly a pale, tenuous shade – and much of it seemed to follow straight-line routes, perhaps remnants of artificial water courses, relics of the long-gone industrialisation he had witnessed in Icsoba's time – but green none the less.

And, they observed as they swept over the surface, there was plenty of surface water too. Indeed much of the northern hemisphere was flooded, they saw as they neared, a shallow ocean. And a gleam of white revealed the persistence of ice at the southern pole.

Air. Surface liquid water. Green stuff. Mars was alive. It figured. The Sun was that much brighter now; Mars was that much further out from the Sun than the Earth, so maybe now it was in the habitable zone.

But Mars in Icsoba's time hadn't had such resources. It had been arid, its ice caps and subsurface aquifers mined out by the busy industrialists. All that water, and air, had been *put back* somehow, brought in from somewhere. That had to have been done by humans. A kind of late, apologetic terraforming. And if you were going to do that, you may as well bring life back too.

At closest approach Hackett scrambled to make spectroscope readings. The green stain turned out to have the signature of Earth life. Of course it did.

So was all this life a relic of a later age, of a long vanished human colonisation? Or maybe it was nothing to do with humanity at all. Over billions of years there could have been a fresh panspermia event, with hardy bugs from Earth travelling in comet-blasted rock fragments from an overheating Earth to a warming Mars. Not impossible, though unlikely ...

And, as the planet receded after closest approach, Hackett saw that a tremendous crater disfigured the southern hemisphere – huge, a planet-scale feature, like the Moon's Mare Imbrium. It was flooded with water, as much of the planet seemed to be, and fringed by greenery.

Icsoba frowned. 'That fresh pit. Has there been a war here?'

'Maybe not,' Hackett said. A memory floated into his consciousness. 'The fall of Phobos,' he murmured. 'One of Mars's moons. I think that was predicted around fifty million years after my time. Or, yes, there might have been another war.'

Pogee shrugged. 'No sign of people?'

'None.'

But Icsoba said, 'I thought I saw signs of settlement. Paths cut in the green, through forest.'

Hackett checked his scans. If there had been such evidence it hadn't been picked up by the automated systems. That wasn't to say it didn't exist. Perhaps there were fractal networks of pathways, created by a people who cared little for neatness or utility – or chose not to telegraph their presence to space with obviously artificial forms and structures. On the other hand,

Icsoba might be trying too hard to find evidence of her own people's descendants.

Certainly there was no message from the ground, no reply to their signals. No lights on the night side.

The rejuvenated Mars fell away.

More days passed.

They slid closer to a brighter Sun. And to Earth.

Hackett had tried to anticipate what he might find when they reached Earth.

He knew that the Sun had been heating steadily – ten per cent per billion years used to be the estimate. All because the star was running out of hydrogen fuel, down in its fusing core, on its way to a red giant stage that was yet to come.

But that steady heating would have had consequences on Earth long ago, consequences predicted even back in his own time. And, as the planet neared, those consequences seemed clear.

'I don't understand what I'm seeing,' Icsoba said. 'The world is red, like Mars used to be. There's no ice ... The sunlight?'

Pogee consulted readouts. 'We predicted all this, Icsoba. In my time.'

'Mine too,' Hackett couldn't resist putting in.

Rava went on, 'We could model the future of the Sun, the planets, in great detail. We knew there would be many glaciations to follow yours. The last maybe two hundred and fifty million years after your time, when one last supercontinent would form.

'But that Sun was always growing hotter and hotter. The last ice would melt, the ocean would start to evaporate, the ground temperature would rise, the seas become more saline. After a billion years the seas must have boiled away altogether, ending any life outside a spacesuit. Earth would have been like Venus, a dense, steam-laden atmosphere – and all that steam would have trapped the heat in a water vapour greenhouse, so it got hotter and hotter, until—'

Hackett held up his hand. 'Enough, Rava.'

She shut up, and they waited until Earth grew from a pale dot in the sky – a pale *red* dot – into a gleaming coal.

They settled into a high orbit. Landing was evidently impossible. Five billion years after Hackett's time, the surface of Earth was molten.

They studied this sombre scene from a high orbit for two days.

On the third day they were hailed.

‘My name is Taiva Lopic.’

John Hackett, sitting in the command chair, alone on the bridge of the *Perseus*, just stared.

She – he thought it was a she – had appeared out of nowhere, with no warning, no sign she was coming. Maybe he had felt a breath of air just before she *incarnated*. The air she had displaced, maybe. Or maybe he imagined it.

Now she smiled at him. She was floating in the air, as were a coffee cup, stylus, and other bits of junk; the *Perseus* had no gravity save under acceleration.

Taiva Lopic.

She seemed short to Hackett – though not so short as Icsoba – her body heavy, it seemed. The robe she wore, of some grey-brown material, concealed any detail. Her round, smiling face looked out at him from a shaped, integrated head covering, with a flat, stiffened crown. Her hands were tucked inside her sleeves.

She looked like a nun, Hackett thought. And not much sign of evolution over five billion years. He had no idea how old she might be.

Her skin tone was like copper. Very beautiful.

Having announced her name, she just waited for his response.

He tapped a panel. ‘Icsoba. Rava. You’d better get up here. We have a visitor.’

Murmured acknowledgements.

‘A visitor,’ said Taiva Lopic. ‘Uninvited, but you honour me.’

‘My name is John Hackett. This ship is the *Perseus*.’

Her voice – was it automated or genuine? – sounded deep, mellow. ‘I know. Your call signs match the traces in various archives. Very deep

archives.'

Now Rava and Icsoba came bustling in, eager, wary, staring at their visitor.

Taiva nodded in acknowledgement.

Hackett said, 'We left the Solar System ... well, the best part of five billion years ago.'

She smiled. 'I know—'

'Deep archives, right?'

Then Icsoba drifted forward and passed her hand *through* the visitor's.

Lapic's hand broke up into a cloud of blocky pixels, before reforming. A projection, then, Hackett thought. A miraculous technology but not a teleport. He felt an odd triumph to have spotted a limitation in the technology of this unknown, far future culture. Even if he might have imagined that breeze when she arrived.

'My name is Taiva Lapic,' she repeated. She pointed. 'You are Rava Pogee. *You* are Icsoba of Ambriel.'

Icsoba seemed stunned. 'You remember us.'

'Of course we do. I am an Archivist – a Senior Archivist. All of the Substrate is an archive, in a sense, and a very intelligent one. But still it takes experience and judgement to ask the right questions. I am one of the few Archivists incarnate at this era.' She considered. 'One of the few incarnate human beings at this moment, in fact. This is why I volunteered to meet you.'

Rava Pogee laughed, not unkindly. 'We got so old they sent an archaeologist to greet us. Great.'

Hackett tried to pick his way through what this Taiva Lapic had said. 'So there are very few ... incarnate humans. Does that mean there are a lot of non-incarnate humans?'

'Of course.'

'And where are they? I mean ...'

'In the Substrate,' Rava said, sounding intrigued. 'Whatever *that* is, and however it works. Some kind of virtual reality tank?'

'Rather more than that—'

'You remember us,' Icsoba said, fixing on that fact.

'Of course, Icsoba of Ambriel.'

The name seemed to make Icsoba shudder. ‘Does Ambriel survive? I mean – we have seen Earth. The molten surface. The Ambriel I remember can’t be there any more. Does the community persist, somewhere else?’

‘Probably,’ said Rava. ‘In this Substrate.’

Taiva didn’t contradict her.

Hackett asked, ‘And where is this Substrate? If it has a physical existence at all—’

‘Everywhere,’ said Taiva. ‘In human space.’

‘And people?’ Icsoba pressed. ‘Real people, I mean—’

‘Incarnate people,’ Rava prompted.

‘Mostly on Mars at present,’ said Taiva. ‘A few habitats—’

‘Ha!’ Icsoba said. ‘I knew it. We’ve seen Mars. That’s where my people would have gone if they had to abandon Ambriel.’

Hackett said, ‘I’m embarrassed. Here you are, a guest on our ship, and we batter you with questions.’

Taiva remained calm – in fact she was almost expressionless. Hackett wondered now if she had been subtly smiling throughout this encounter.

She said, ‘I’m not offended. It is my job to welcome you, to field any questions you may have. In fact, it is an honour. Craft returning to the Solar System are vanishingly rare, and almost all are automated, and most of *them* are relics. Often self-replicating probes, many generations old. If they still operate at all they can be functionally insane.’

Hackett frowned. ‘How long is it since a crewed ship showed up here?’

‘I do not know. So long ago that the historians are having to research it as we speak.’

‘In this Substrate,’ Rava said doggedly.

‘All wisdom is there, all knowledge—’

‘Right,’ Rava said. ‘But humanity is now so old even its self-knowledge is evidently a deep mine.’ She glanced out of the window, at the brilliant stars. ‘So much has changed.’

‘Yet there is continuity,’ Hackett said. ‘You remembered us.’

‘All records are partial, faulty,’ said Taiva Lopic. ‘But, yes, we remembered you. The flight of the *Perseus* is legendary. Once again – welcome home.’

Icsoba frowned. ‘I don’t even know if you are male or female.’



Taiva thought that over. ‘You are asking the wrong question. It is a category error.’ She frowned. ‘I am more comfortable if you think of me as female.’ She looked around at them all. ‘I should not rush you; I should not overwhelm you with change. I am guided by no fixed protocol in this encounter, this welcome.’ She smiled. ‘I cannot imagine how it would be to be *you*, to be displaced so far in time. I propose to leave you now, for one hundred hours. If that is acceptable ...’

Hackett nodded. ‘I’m wondering how you know how long an “hour” is, but we’ll be happy with that. Then what?’

‘Then I will take you home. I mean: take you where we think you will be most comfortable.’

Rava frowned. ‘Mars?’

‘Mars. Well, you have seen Earth. We followed your craft’s progress. Earth is home; Earth is the parent of mankind. But for now Earth is—’

‘Lethal,’ Rava said bluntly.

‘In need of saving,’ Taiva Lopic said. ‘But Mars is Earthlike – its environment, its openness.’

‘Terraformed?’ Hackett asked.

‘As best we could. Or our ancestors could—’

‘Animals,’ Icsoba said. ‘Are there animals?’

‘Those that survived humanity, and the collapse of Earth’s climate, or could be reconstructed.’

Icsoba smiled. ‘We had such animals too. Reconstructed. I suppose we preserved them, for the future. And here I am *in* the future. And what of Earth itself?’

‘It is not clear if the planet is destined to fall into the expanding Sun, or to drift away as the Sun’s mass reduces, without intervention. *We will save it,*’ Taiva said firmly. ‘So far as we know Earth is the only world to have spawned life of any kind; the only such world in the Galaxy ... in the known universe. As you, John Hackett, have confirmed.’

‘Paging Enrico Fermi,’ said Hackett.

Rava frowned. ‘Who?’

‘Never mind. No traces of life anywhere else?’

Taiva looked absent, as if concentrating; perhaps, Hackett thought, she was accessing deeper levels of this Substrate of hers.

She said now, ‘Yes, in the Solar System, but only secondary instances. Life seeded from Earth, mostly through human intervention – failed colonies, accidental contamination through primitive probes – though there were some instances of natural panspermia – to Mars, for instance. That is, there has been some natural spread of life between planets – even between stars.’

Hackett nodded. ‘I remember those ideas. Hardy bugs, resistant to radiation and vacuum, blasted off Earth by an asteroid or comet, and then drifting for megayears—’

‘It is not impossible, but it is very rare. There are records of a few such instances, even across interstellar distances. But none more than a few tens of light-years from Earth – and, as I said, only emanating from Earth as a source. Evidently such a dispersal of life, Galaxy wide, say, could only become significant in a much older universe than ours.’

*A much older universe, says the woman from the year AD five billion,* Hackett thought. Every so often, in his hop-skip-jump journey into futurity, he wondered if this was all some illusion, if he would wake up in some geriatric ward to be greeted by the smiling face of a nurse, in the year 2204, to celebrate his hundredth birthday.

Taiva said, ‘I will leave you now, to prepare for the transfer to Mars.’ She hesitated. ‘I am honoured to have met you all.’

Hackett frowned. ‘Is that it? We have made an enormous journey of our own. Evidently you know all about us; you know we went all the way out to the Perseus cluster. A very active cluster of galaxies, exotic objects, quasars and black holes ... We sent back regular packets of data.’

‘Many of which we received,’ Taiva Lopic said. ‘And, yes, your data on the Andromeda and collision, and the consequent stellar birth wave, has been crucial. We have sent probes out ourselves, even beyond the galactic plane. But none has given us the unique perspective you offered. All of this has been fed into our own star-shaping projects. It is very useful. We are grateful.’ She seemed to be reaching for something more. At length she said, ‘You are heroes, to us.’

*Star-shaping projects?* That was new. Rava, Hackett, Icsoba exchanged glances. Maybe that was what they had glimpsed, when they had witnessed that tortured young star. *Later,* Hackett thought.

As to the sentiments expressed – he felt vaguely, illogically resentful at Taiva’s bland acceptance of all this. That had sounded like a prepared speech at a school prize day. ‘*Useful*. Is that all you can say? We did travel two and a half *billion* light-years, and back, you know. A hell of a stunt.’

Taiva Lopic seemed to consider that. Perhaps, Hackett thought cynically, she was accessing some file on primitive humans to shape an appropriate response.

At length she nodded. ‘Well *done*.’

And she winked out of existence.

In the end it was more like two hundred hours – over a week – before Taiva Lopic showed up again.

And this time her arrival was heralded by a small convoy of ships, converging on the *Perseus* in its high, looping Earth orbit.

At least, Hackett thought they were ships. They were featureless, silvery spheres, each a little larger than *Perseus*'s main body itself – though the dark energy scoop, if it had been deployed, would have dwarfed the whole futuristic fleet, he thought with some relish. But that was a childish reaction, for he could see at a glance that this technology was far above his own age's, and probably beyond Icsoba's, itself millions of years ahead of his own.

For example there was no evidence of a propulsion system at all: no sails, no rocket nozzles, not even a varying hull temperature (he measured and checked) to hint at the workings of some kind of engineering structure within. And the ships didn't make any physical contact with the *Perseus*. They just joined up in close formation and drifted away, taking *Perseus* with them. No reaction mass expelled, no energy collected, not even from as thin a medium as the dark energy which had propelled the *Perseus*. No mechanical grappling of the *Perseus* itself ...

Tractor beams?

He hesitantly discussed this with Rava, but she had no better guesses than he had. They speculated that the ships were acquiring their momentum by reaching up into some higher dimension of space, just as through its dark energy scoop the *Perseus* reached out of this cosmic plane and into what Hackett had learned to call *the bulk*, to gather its own energy and momentum. If so, the operation was subtle, seamless and invisible.

Icsoba showed no interest in any of this, and wasn't even motivated to guess. Hackett should have expected that. He had come to realise that she was from a very different age than his own or even Rava's – an age more like this Andromeda-collision epoch in many ways, where machines had reached such heights of seamless perfection that you simply didn't need to wonder how they worked any more.

Anyhow, the sphere-ships huddled around the helpless *Perseus* and wafted it across space, back to Mars, at what seemed an absurd speed to Hackett. He patiently observed what he could, analysed what he could, made notes, because you never knew. And hoped they did no harm to his ship.

Their trajectory brought them to a looping close orbit around the planet, slow enough for the crew of the *Perseus* to get a better overview of the main features than their flyby had afforded.

Near the equator, Hackett saw now, you still had the great volcanoes, pushing high through now thicker air. Olympus Mons, though its flanks were green-coated, still had a barren caldera at its summit – so high it evidently still poked out of the bulk of the atmosphere, even though the air itself was so much thicker and deeper now. And the caldera itself, a field of overlapping craters, was still a faint pink-red, the colour of old Mars. After so long Hackett's memory wasn't good enough for him to tell whether that palimpsest of ancient eruption scars had changed since his time. But he saw that the summit as a whole had been overlaid by tracings of technology now: straight-line walls and barriers, the stumps of towers, long dismantled and removed. A question to Taiva revealed that a space elevator had once been anchored here. Gone, gone, like so much of the history through which Hackett had hurried.

If the summit was a survivor of his own time, much of the rest of Olympus was transformed, with the lower slopes covered by a blanket of thick green. *Forest*: he could pick out individual trees through the ship's scanners even before they had entered Martian orbit. Trees, he realised, that must be tall indeed.

'Trees,' Icsoba said. 'Forests. Look at it. I'm sure that's where my people would have come. When they had to abandon Earth, finally. Not the

ice, not the top of this big mountain. The forests, with any animals that survived ...’

Rava reached over and squeezed her hand. ‘I hope you’re right.’

The accompanying crowd of ships slowed as they made a final approach to the planet, and slid into a neat low orbit – a slow, lazy circling; Mars’s gravity was still as low as it had been, and all orbits were slow – and an orbit tipped away from the equator so that they passed over much of the terrain, north and south.

The fleet swept across the dark side of the planet. The nearby stars in this crowded new Solar System gave a light as bright as moonlight on old Earth, and the main features of the nightside of Mars were clearly visible, the dark sprawl of forests, the gleam of the starlight on ice.

After an hour in orbit, Taiva Lopic manifested once more in the air of the *Perseus*’s bridge. The three crew were all here, Hackett, Icsoba and Rava, watching their ship’s instruments.

Taiva Lopic just stood silently on the bridge, letting them look. ‘I imagine you recognise little of the world we have tried to preserve,’ she said now.

Hackett was becoming unreasonably irritated by this person, if she was an authentic person at all, and not just some construct of this sinister Substrate. ‘Maybe, maybe not. But just remember we knew this world, all these worlds, when they were young. Including the Earth, the green Earth. Something you never saw – something you could never *know*.’

Icsoba rested a hand on his arm, a very human gesture. ‘Don’t be angry with her,’ she said. ‘Taiva’s come to help us, remember.’

Rava said, ‘*Preserving* Mars, though. Well, you look like us. *You* have evidently been preserved. How come, after so long? Is your form, your bodily form, typical of your kind? Or is it all some comforting simulation for our benefit? Are authentic humans actually drastically evolved from this form after five billion years?’

‘No.’ Taiva shrugged. ‘I am, we are, as you see me. There are theories that intelligence tends to freeze evolutionary progress, save in desired aspects—’

Icsoba, evidently seeking to lighten the mood, said eagerly, ‘Yes. We believed this in my own time. *We* knew how similar we were to our ancestors millions of years gone. People look in the mirror, they look at

each other, and take what they see as a model, and choose their appearance – to some extent. Evolutionary pressures are countered by the conscious choices of intelligence, expressed through technological, scientific, cultural progress. We keep the outer form. We upgrade the workings. I know that the age of space habitats left some of us with smaller statures—’

‘There was some of that in my time even,’ Rava said. ‘But if you could take any form you like, there’s a cultural counter-pressure to keep hold of what you are.’

‘So,’ Hackett said. ‘The human form has been preserved for billions of years, like a mummy in its sarcophagus.’ That wording evidently puzzled them all, but the hell with it. ‘While the planets themselves evolve. Even the stars.’

‘Indeed,’ Taiva said.

‘Some events we predicted, like the fall of Phobos. The inner moon.’

Taiva Lopic nodded. ‘My distant ancestors saw the fall. The moment of impact was visible to the naked eye from Earth, it seems. Mars flared. We waited for the smashed ground to cool. And then when we flooded Mars, an ancient northern ocean re-formed, and the deep Phobos crater became a sea. We stocked the oceans of Mars with life, and the land. There is even a canal system to connect the two great oceans, to enable a larger and richer biosphere to emerge.’

‘The canals of Mars redux,’ said Hackett, grinning. None of the others had any idea what he was talking about.

Rava was frowning. ‘Where did you get the water from? By the time my generation got there Mars’s water had been mined out and removed – from the polar caps, the deep aquifers—’

‘Oh, from the Earth,’ Taiva said. ‘When the Sun’s heat increased, when the oceans boiled off – we collected what we needed from the dense clouds. All this was billions of years ago.’

‘Boiled off?’ Icsoba stared out at the diorama, looking shocked.

Hackett said gently, ‘We did see it, Icsoba. The melted surface.’

Pogee touched her shoulder, held her small, child-like hand. ‘At least Earth’s water wasn’t wasted. And somewhere down there might be the new Ambriel. I’m sure your people, their descendants, will have been saved. If only in this “Substrate” they speak of.’ She glanced at Taiva for confirmation.

Taiva nodded. ‘At every point in the abandonment of Earth, as much as possible was saved of the planet’s suite of life, and indeed mankind’s legacy – biological, archaeological, cultural. It was of course a cosmically unique treasure, if life on Earth itself, if human intelligence, are unique phenomena.’ She frowned, as if listening to a silent voice. ‘But I believe, yes, there may be descendants of Ambriel, even physical relics, at a known location. Let me take you there. I believe you have a landing craft, which may be the best way—’

‘Yes,’ Icsoba said eagerly. ‘Oh, yes, please. I know it makes no real sense. After so much time any descendants from Ambriel can have had nothing to do with me. But even so—’

‘We’ll go and see,’ Hackett said. ‘My ship, my craft. I’ll do the piloting.’

Rava laughed out loud. ‘You, barely out of the freezer, in a ship that’s been to another galaxy cluster and back? Maybe we’ll ride that bus again. Maybe they’ll even let you sit at the controls. But *you* won’t be flying that thing down into their ancestral forests, I can assure you of that, my friend.’

Taiva considered, looking abstracted, as if listening to a voice in her ear. ‘Rava is right,’ she said at length. ‘Though I wouldn’t have put it that way. No human has piloted a craft of any kind within Mars’s gravitational sphere of influence – under the moons’ orbits – for a billion years. Oh – save for sailing on the Phobos Sea. It cannot be allowed, I’m afraid.’

Hackett felt like arguing, unreasonably, unfairly. Here he was with three radically removed generations of humans, and they only seemed to get blander with time. But if they hadn’t, he supposed, if there hadn’t been some selection for caution and forethought, the species would have died out long ago anyhow.

He suppressed a sigh. ‘Let’s do it.’

Taiva Lopic smiled. ‘Let me know when you are ready to descend.’ She winked out of existence.

A few seconds later the ship’s internal monitors, which had counted Taiva as a human being equivalent to the others, reported that she had left the ship.



They took a day to prepare. That included time for the application of some kind of bio technology, delivered in the form of pills and mild radiation baths, evidently intended to immunise the newly arrived crew from any novelties permeating this far-future environment, and indeed to protect the future from the crew.

And Hackett insisted they each take a pack of essentials – fold-out survival suits, basic medical supplies of their own, a little food, bottles of water. He felt vaguely foolish, doing this. He supposed he was displaying an ancestor of the characteristic caution that had ultimately driven people to download themselves into this Substrate. But he wasn't going to under-prepare just because of a little self-consciousness. He filled the packs anyhow.

The descent itself, in *his* lander, if not under his control, was smooth – though not too smooth, and he wondered if some weather control function had shaped the tall, cloudy sky through which they were travelling.

And when he looked down to their landing site, on a lower flank of Olympus, he saw no sign of structures. Nothing but mountainside, a broad river valley running away from the foot of the volcano and leading to the shore of the big northern hemisphere ocean – and *trees*, the green crowding everywhere, even high on the slopes of Olympus itself.

They landed in a forest clearing.

When the craft's door slid back and a chill, damp breeze rushed in, Taiva Lopic was waiting for them, standing back, dressed in a heavy black coat, trousers, boots to which bits of broken vegetation clung. She was framed by the forest behind her. The copper tone of her skin seemed to glow, in the bright ruddy light of the swollen Sun. If this wasn't real, Hackett thought, she had never looked more authentic. It seemed rude to ask.

Hackett led the way down the short ladder to the ground, and walked around cautiously, getting used to open spaces again – a transition he had made many times before, after other missions. The ground itself was hard, part frozen perhaps, covered by mats of huge leaves.

Leaves. A forest. Trees. *Very* tall trees. Here, at their feet, the light was gloomy.

He took deep breaths of the air, which was rich, moist, a little cold, eminently breathable. The terraformers had done a good job here, no doubt millennia back – no, much longer ago. Millions of years, even billions? Anyhow, more first footsteps, he thought.

His movements were ungainly in Martian gravity, one-third of Earth's. But he was an old astronaut and used to varying gravity. Rava had her mechanical aids, now morphed into a kind of wheelchair.

Icsoba, though, almost tripped coming down the stair, and then walked clumsily on the open ground, clomping her feet down as if seeking a non-existent step. 'How strange,' she said, forcing a smile. 'That such a simple change in conditions is so bewildering. In my time, we had evidently lost our ancestors' ability to function in changing gravity fields.'

Hackett snorted. 'Suck it up. Here, hold on to my arm until I get annoying. Then you'll *know* you've adapted.'

And then the wind changed.

He turned to face it, and he felt cool air on his face, a tang of salt in his nostrils. He took a deep breath. 'And that,' he said, 'with all due respect to your domed city, Icsoba, is something I've been missing for five billion years. A breeze off the ocean.'

Taiva Lopic approached them now, smiling. 'That is quite a tribute. Thank you. It will echo in the Substrate, as we would say.'

'An archivist's joke, no doubt,' Hackett said dryly. 'Colder than I expected. Where's that damn red giant Sun when you need it?'

Rava Pogee, in her chair, was crossing the leaf mat, staring up at the tall tree trunks themselves. Muttering, she said, 'I don't get it. These people can rebuild worlds. They saved Mars. They want to save Earth itself, which is already a half-melted ruin. So why plant so many *trees*?'

Taiva Lopic looked at her curiously, as if she was missing something obvious.

Hackett peered up at the tree canopy, far above his head – a screen of green obscuring a blue sky. ‘I’m a city boy, and didn’t get much beyond the town parks ... I think *this* is a kind of pine. But much bigger than anything I remember from Earth. Hell, I don’t know, maybe up in Canada ...’

Taiva closed her eyes, as if listening closely to a silent voice. ‘You’re correct. The species suitability depends on the climatic zones, the altitude, the access to water. These are a species of pine – much evolved from earlier species. The forests of Mars include descendants of oaks, sequoias ... There is a whole ecosystem here, recreated through genetic archaeology.’ She looked at Hackett. ‘A tree itself is an ancient form. I mean the morphology: the roots in the nourishing ground, the tall stem, the leaves to capture sunlight energy. A strategy adopted by species after species. I would be interested to know if you see any signs of evolution here. Or even a lack of authenticity.’

He shook his head. ‘I’m no expert. It’s the height that bugs me.’ He pointed. ‘*That* looks like an oak over a hundred metres tall. As big as a sequoia. And aren’t we missing the point here, Hackett, Icsoba? *Why* are they filling Mars with these trees? Aesthetic or nostalgic it may be—’

‘As a backup,’ Taiva said.

Rava said, ‘A backup in case of what?’

‘Well, if the power goes down. It’s a remote contingency. Our second to last line of defence is Mars’s own inner heat. But the last resort—’

Icsoba said, ‘Oh. I think you understand, John.’

Hackett had to laugh. ‘You do?’

‘We had forests, south of the ice. You saw them. Our trees were smart. Our forests were smart.’

‘Oh. Right. Trees communicate, they are interconnected by their root systems and such – a forest as a whole amounts to an immense data store. And as Taiva said, a backup against power failure. To support this Substrate of yours.’

‘The Substrate is a unity,’ Taiva said. ‘There are memory lodes on Mars – yes, and there are stores even on Earth, still – and in space. Separate physical lodes, but a logical unity, thanks to a kind of quantum entanglement ...’

Hackett had no idea if that translation was correct, or meaningful. ‘You mean, in a sense, all of the Substrate is one, despite disparate locations.’

‘Exactly. We store human consciousness in the Substrate. And so, in this forest network.’

Hackett laughed. ‘People in tree roots? That sounds crazy.’

Taiva Lopic stood patiently. ‘It is a question of equivalent complexity. I am sure that even in your time, John Hackett, it was known that a human being is a composite thing. That such elements as the mitochondria in your cells were once free-living organisms. That some ten trillion beings of different kinds combine and cooperate to *make* a human being. And to support that being’s awareness, consciousness. Memories. All that it *is*.

‘We try not to lose people to death, Hackett. As death approaches – and at intervals before in case of accident – individuals are ...’

‘Downloaded?’

She thought about that. ‘The word is not right. It will do. Downloaded, each with all their ten-trillion-fold complexity, into the Substrate, our vast memory store, buried deep in this planet. And in other, much older stores that reside deep in the Earth—’

‘Ah. So you need to save Earth from the red giant Sun. Because it contains your memories.’

‘That’s one reason, yes.’

‘Trees, though?’

‘Ten trillion creatures combine to make a human being. Today there are ten trillion trees on this planet, on Mars. We estimate that on Earth at their peak there may have been some six trillion trees—’

‘Before the hunters and farmers came along, burning and chopping ... Oh. I see. The network you have here, the forest network, has the same order of magnitude of complexity as a human body.’

‘But massively parallel,’ Taiva said. ‘We can store many, many people here – if we need to.’

Icsoba sighed. ‘Or if you choose to. I find the notion of your Substrate – cold. The idea of living on in the memory of a forest is much more appealing. I do wonder what became of my family, their descendants, after I left,’ she said. ‘Surely that’s natural, even though it was my choice to go.’

Taiva smiled back. ‘Just close your eyes.’

Icsoba did. She looked much younger, Hackett thought, her eyes shut, immersed in the green light. She turned around slowly. Then she shouted. ‘It’s here! I found it! Ambriel – a new Ambriel, on Mars ... This is how it

was. Come, John, Rava. Can you see it? Look, there is the roadway, the entrance sweeping up to the dome ...’ She half-opened her eyes. ‘Ah. A dome of wood. But it is not *my* Ambriel.’

‘No,’ Taiva said gently. ‘It never was. This is the place your people built here, when Earth was abandoned. Other communities did likewise. Your descendants built it as a kind of memorial to what had gone before. Itself a structure that lasted billions of years ...’

And, just briefly, Hackett saw it too. The great dome, superimposed on his view of the crowding trees, a grand base he could easily believe might span tens of kilometres, like the original. No ancient ice here, no skidoos, nothing but this dense Martian forest ...

Yet this was Ambriel.

Taiva Lopic murmured to Hackett, ‘Icsoba *wanted* to see this, and so the system responded. The Substrate interface. Why, it brought us down to this very spot, where the settlement must once have stood.’

Icsoba was weeping now. ‘They were here. They were *here*. I can sense it.’

Taiva, towering over her, leaned over and put an arm around Icsoba’s shoulders. ‘Of course they were here. And in time they faded into the Substrate. But they are *still* here, all around you ... Go back. They are waiting for you.’

While Icsoba was occupied with exploring virtual Ambriel, Hackett drew Taiva Lopic aside, with Rava. ‘Taiva – what’s this really all about? What is your ultimate goal?’

She regarded them, and considered her answer. ‘Must there be a goal?’

Rava put in, ‘We saw your – meddling – with the young stars.’

‘Very well. A fair question. We have many goals. Surely that’s true of any culture. No doubt the same was true in your day. Many goals, many contradictions. But the overarching ambition, which governs our civilisation, if you like, could – *I* believe – be expressed like this.

‘We accept we are alone in this universe – Earthborn life – life and mind. Alone. For we have searched the universe, and found nothing save panspermia traces of our own biosphere. And so we want to become the best we can be – and to survive as long as we can. On a cosmic scale, if we can. Of course we have specific ... projects within that. We wish to

preserve what we can of the past. And for the future, we wish to increase human numbers, in the Substrate and beyond, to at least ten trillion. Because then—'

'Ah,' Rava said, wondering. 'Just as a human being is a transcendent composite of ten trillion lesser beings, so this – host – would be a transcendent form above humanity.'

Hackett was taken aback. 'Wow. That's quite a leap.'

Taiva nodded gravely. 'And we wish to survive for a hundred *thousand* trillion years.'

That big number was ... meaningless. But it sounded *too* big. Hackett thought it over. 'Ten to power seventeen ... My cosmology is five billion years out of date. A mere hundred trillion years, though. That's when the *last* stars will be dying. Correct? According to the cosmology I remember. And the universe will move into a different phase ... And then?'

She actually smiled. 'We have a plan.'

Hackett had to smile back. He was beginning to think that he had a lot in common with Taiva. Maybe her whole extended generation.

'How, though?' Rava pressed. 'How can you be sure you can last that long?'

'By rebuilding the sky.' And Taiva looked up at the pale Martian sky.

Now Icsoba came stumbling over, gasping, through her tears. '*I saw horses. Small, shy horses, grazing by the roots of the trees ...*'

And Rava took Hackett's hand and squeezed tight.

John Hackett and his unlikely crew spent a year – an old Earth year – on or near the new Mars. Partly to allow their bodies to adapt, and their minds, Hackett thought, in his case anyhow, as he faced yet another blizzard of conceptual weirdness, in another extraordinary epoch.

Their hosts, fronted by the tireless Taiva Lopic, were used at least to returnees from long-duration spaceflight, and to re-integrating such crew while minimising culture shock. So, for months after the landing, they were allowed to see only a few of the locals, the humans of this impossibly remote age, eerily unchanged in outward form. And there were few anyhow, it seemed, because the ‘waking’ population was always small compared to the numbers who slumbered in the enigmatic embrace of the Substrate.

Few seemed tall to Hackett, but many showed genetic adaptations, either evolutionary or engineered, to Mars’s low gravity. They habitually wore heavy clothing outdoors; the air was breathable but never warm, a reminder that this part-terraformed world had yet to enjoy, or endure, the full heat of the ageing Sun.

Of the three of them, Icsoba seemed by far the most comfortable on this new Mars. Most of the Martians towered over Icsoba, but were unfailingly polite to her. And the children, few as they were, were drawn to her. She cheerfully threw herself into games, mostly what looked to Hackett like versions of hide and seek in the planetary forest.

And she fascinated children and adults alike with tales of how she and her family and people had lived, so long ago, in ice houses on Earth that must have melted long before the rocks themselves started to liquefy in the Sun’s heat. Maybe this was serving as therapy for her, Hackett wondered. This Mars was a *human* environment, not full of spaceborne cyborgs like Rava, or lost souls from an impossibly distant past like Hackett.

It struck him now that that she had said very little of her life in Ambriel during their long space voyage.

‘Which is because,’ Rava Pogee told him once, when he said this, ‘you and I, my friend, were probably the worst listeners she could have chosen. Perhaps she did try to open up, and we didn’t even notice. We had our own prejudices about Ambriel. All we could see was the grounded space colony – even me, after centuries with them. It was always much richer than that. I think we can clearly see now how much she misses her old life and family.’

Anyhow, of the three of them, it seemed to Hackett that Icsoba was the most likely to stay *here*, if she was invited, if she had the choice – here in what he thought of as a traditional human layer of this strange civilisation. As opposed to the off-world layer, the tremendous space projects going on in that dramatic galaxy-collision sky, to which *he* felt his attention drawn.

And as opposed to what he thought of as a sinister underworld, the Substrate seemed to both attract and repel Rava, even as she explored it.

‘Oh, I can see the benefits,’ she said. ‘For one thing, down in the Substrate I get to feel like a fully functioning human being again, *without* years of surgery and other super-future therapies. I’m just *me*. Or I can choose not to be me—’

‘It’s just some vast virtual reality, then,’ Hackett had said. ‘A game environment.’

‘Oh, it’s much more than that. They do download a complete quantum description of each inhabitant, at least the consciousness—’

‘Which I thought was impossible, without destroying the original? Evidently not.’

She faced him, looking sad, as if sorry for him. ‘You told me about your niece, your loss, the way it – destabilised you. Well, this is life after death, John. Or as near as mere humans are likely ever to get. That’s why it’s a terrible trap for us, I’m afraid.

‘Go ask your pal, Taiva. Get her to explain it all. No, better yet – *get her to show you*. And then come back and tell me all about it.’

*Your pal, Taiva.* The words seemed to hang in the air between them.

He wondered if this was a good time to bring up the sexual relationship he had started with Taiva Lopic. Or the fact that she had offered to show him a star being born – and engineered.



‘Once, in your day,’ Taiva Lopic had said to Hackett, ‘there was no star closer to Sol than four light-years. Now there are thousands. Let’s go see the newborn.’

He couldn’t refuse.

But to be taken off the planet, she insisted – if he still refused to be downloaded into the Substrate – that he had to be installed in a very advanced sleep compartment, a coffin-shaped box with a lid. He was made to lie back on a soft bed, with edges that crept in around him to fit his naked body, while tubes snaked out and wormed into every orifice – *every* one, a thorough plumbing. The technology was far advanced over that of the *Perseus*, even with Rava’s upgrades.

Somewhere, soft, shapeless music played. It wasn’t helping.

Taiva’s company was, though. At least it made him feel impelled to behave well, when confronted by the giddy strangeness of this age. And her brusque tenderness was becoming addictive.

He focused on the conversation, not the tube crawling up his urinary tract.

‘I know about those ancient nearby stars. The nearest in my day was called Proxima Centauri. A red dwarf.’

She nodded. ‘No longer the nearest, of course, but we still call it Proxima. I know *that* itches, but don’t scratch it.’

‘Sorry. We didn’t rate Proxima. I think in my time we thought red dwarfs were too small and dull to support life. A dribble of heat, a danger of solar flares ...’

She sniffed. ‘Well, you were wrong. Red dwarfs are good. *We* like red dwarfs, because they last a long time. In a way that’s the whole point of our wider project. No, more than a project – an epochal mission.’

‘Epochal. That sounds – bold.’

‘Or hubristic, you’re thinking. Well, you can judge for yourself. That’s part of the purpose, for us, of this trip. To see it all from a different perspective. *Your* perspective. Tell us what we’ve missed. You’re an outsider, after all.’

‘Ah. I think I can feel the thrust building up.’

She stood, cautiously. ‘You’re right. A fraction of a standard gravity so far, no more.’

He frowned. ‘What’s “standard” now? With everybody living on Mars.’

‘Earth gravity, of course. One of the ways to remind ourselves where we came from.’

*Across billions of years, he reflected. Quite a feat.*

‘Nice smooth thrust,’ he said. ‘I know it’s a ramjet.’

‘Indeed. Essentially the same engineering logic as your *Perseus* – save that *Perseus* draws in dark energy as its energy source. Designed to work out between the galaxies where there is nothing *but* dark energy. But here, following the galactic collision—’

‘Sol suddenly finds itself in the middle of a star-birth cloud.’

‘A hydrogen cloud more than thick enough to power a fusion ramjet, enabling a much more robust technology, if short range. The thrust is really building now. Can you feel it?’

‘I think so. Through the drowsiness.’

‘Well, that’s the plan. We’re heading for a birthing event a light-year from Sol. So we’re going at five G – the ramjet can handle that easily – which will get us there in twelve months by Mars time, a bit less on board thanks to time dilation.’

He wondered how these terms – *months, years* – would sound without the translation filters.

‘You should be oblivious for the duration. But – last chance. You can join me in the Substrate, for the whole time. You understand we have an integrated store aboard, which will be synched with the main lodes on Mars when we return. You would lose nothing. The sex would be incredible, by the way.’

He had no doubt about that. But he was already feeling drowsy. He forced a smile. ‘I’ll take the coward’s way out. And a goodnight kiss.’

She stood, kissed his forehead, stepped back. The lid, itself coffin-like, began to close down over him. As usual he felt an instinctive dread at the coming confinement, tried to stay still, not to show it in any way.

But she saw through that. 'Oh, you're no coward,' she murmured. 'I'm not sure what you are, Earthling, time traveller. But you're no coward. I'll see you in a year or so ...'

The lid closed, sealing him in darkness.

And seemed, to him, to open again almost immediately.

To reveal a sky full of drama.

At Taiva's insistence, they took a full day to recover from their months-long sleep, before beginning a proper survey of their surroundings.

After that Hackett more or less camped in what Taiva called the observation lounge. Here, a transparent hull – all that was visible of the ship was a basic structural frame – revealed a sky full of clouds and lanes of glowing dust, and points of light hanging like lanterns in a fog. *Star birth.*

Beyond this veil he could make out the Sun itself, dimmed by distance and reduced to a point, but still the brightest single object in his view. In fact it cast shadows through the structures in this mixed-up cloud – shadows that must themselves be thousands of kilometres long, he thought. As an inhabitant of the inner System himself, that made him vaguely proud.

What a spectacle.

And nearby a single star was being born.

He saw a bright pinpoint embedded in a rough lens of gases and debris. Already the protostar's light was strong enough for planetesimals, chunks of solid material that might eventually coalesce into planets, to cast their own long shadows through the cloud.

The most immediate item in their vicinity, though, was a habitat. A human construct, a large one, a pocked, heavily engineered white sphere – perhaps as large as a small moon itself, Hackett thought, though it was hard to judge the size. No – he saw a glint of ice – it had been built *into* an ice moon, presumably an Oort cloud relic.

A network of glowing rails covered the moon's surface, and many of them were in use, Hackett saw, by trains of some kind bearing massive cargoes – he presumed lodes of ice. Other craft were flying over the surface, and descending into or ascending out of gaping hatchways. And then there were what looked to him like rail guns, long stretches of metal

mounted on pylons, perhaps to compensate for the moon's tight curvature. Every so often one of these hurled a mass of materiel into space. Much of which, he saw now, was heading for one particular glowing spot in the sky.

He had a scratch screen to hand; he murmured notes or scribbled with a stylus, as Taiva Lopic had shown him. An ancient, enduring technology.

And now, something new. He saw a larger ship rise up from the moon's surface, this time a rough cylinder – presumably a propulsion module – with a large, flat, rectangular deck strapped to its back. On that deck was a cylindrical tube, wrapped in metallic coils, with a mass of equipment behind.

It looked like a weapons platform. It looked like a tank, he thought, sifting through his memory for history-book images, the history of a world now vanished. And it looked like the 'cannon' the crew of the *Perseus* had glimpsed firing into the structure of a nascent star. He scratched more notes.

Taiva came in, looked over his shoulder. 'Tell me what you see.'

'An Oort cloud object,' he said briskly. 'That ice moon. If this place can still be called the Oort cloud. Big enough to be a neat sphere, however. So a dwarf planet, technically – or maybe it was once the moon of a dwarf planet.' He remembered Pluto and its moons, the first dwarf to be recognised. He felt almost nostalgic. Where was Pluto now?

Taiva said, 'Names drift, terminologies change. Words don't matter. The objects endure, however.'

He grinned. 'But not for long in the case of this baby, this moon. Not the way the folk down there seem to be dismantling it. For its ice?'

She nodded. 'Ice and any rocky core material they manage to extract. And it is mostly rock – metals are rare out here. When the Sun itself evolved out of its own birthing cloud, the inner planets soaked up the heaviest elements.'

'For metals you go to Mercury and Venus?'

'Yes. But not to Earth. Or Mars.'

'An interplanetary industrial project, then.' He looked up again at the star-cloud sky, and picked out that nearest, brightest lantern in the mist. 'To do what, though? That's a star being born over there. So why are we here? To make stars of our own?'

She smiled. 'That *would* be hubristic, wouldn't it?'

‘Yes, it would, wouldn’t it? But we saw this on our return to the Solar System. Vehicles like *those* firing into a nascent star, like *that*. Blasting away some of its material.’

‘So what do you conclude?’

‘That you are destroying the young stars.’

‘No, we are just trying to customise them. Make them more useful. Efficient.’

‘Customise!’ He tried to take that in.

‘Correct. And doing it now, while we can, in this brief phase – relatively brief, we’re talking about millions of years, while the material pouring over us from the galaxy collision is available, and malleable – here, now, we can make a difference to the furthest future. I can probably show you the stages, around this crowded sky.’ She murmured at the systems, even tapped a few screens in what seemed a very archaic interface to Hackett. ‘Here – look at this – another specimen.’

In a screen he saw a mass of white gas, somewhere between a flattened sphere and a fat disc, centred on a brilliant pinpoint. It was stationary in his view, but with streaks and curdles evident. A protostar, a close-up. As he had seen before, but at an earlier stage of its evolution, perhaps.

‘I’m guessing that’s spinning.’

‘Correct. In fact the whole cloud is spinning. Watch it for a few hours, and it would be obvious. But the cloud is a big mass, probably more massive than the Sun right now, and it thins out at planetary distances from the centre. The star formation itself begins with a clump of the wider cloud, a little denser than its surroundings. A clump that randomly collapses, gathers, grows, triggering a runaway infall of material. Then you get a battle of magnetic fields and gravity. As the mass grows and collapses, it spins, dragging the surrounding material into a disc – until planetesimals and planets start to form in the disc, and fusion begins in the central cloud, and a new star ignites. Meanwhile gravity drags at the residual material, which itself spins faster and faster, and you get a cascade of collisions in the cloud, with the formation of more and more massive, solid clumps—’

‘Planets.’

‘Eventually. But we don’t want all that.’

‘You don’t?’

‘We don’t want big stars like the Sun, with planets or otherwise.’

Hackett nodded. 'Then what do you want?'

'At this point in the history of the cosmos – *useful* stars. Longevity. *Efficiency*. And that's why we send in the gun platforms, as you might call them.'

She brought up an image of the 'tank' he had seen.

'Right,' he said, remembering. 'This is what we saw in action. Icsoba and Rava and myself, as the *Perseus* approached. They looked – to me, maybe to Rava – like laser cannon. Weapons. A whole belt of them around a protostar. They seemed to be firing on it.'

And so they were.

The technology had been discovered, incredibly, as a result of the observation of supernovas – the detonations of the largest stars, always unstable, explosions which could, briefly, outshine an entire galaxy. Explosions which sometimes came in a rash.

'Or a chain reaction, you might say,' Taiva said. 'When stars are close together, in a galactic nucleus or a globular cluster, the intense light from one supernova can batter the surface of a neighbour, which in turn is tipped into instability. And so it goes. Well, we found, with some cautious experiments, that we could *do this ourselves*. Those weapons platforms carry gamma-ray lasers capable of emulating, up close, the energy intensity of a nearby supernova – which is about the intensity of sunlight at one solar radius above the surface.

'We don't want to trigger any supernovas, and these small stars couldn't detonate that way anyhow. But with a young protostar like the one we see here, we found that we could control – or at least disrupt – the star's growth. Simply by blasting away material before it could accrete onto the star.'

Hackett tried to think this through. 'So,' he said. 'Out here in the Oort cloud, humans are mutilating baby stars. Why? What's the point?'

'Well, we aren't trying to destroy anything, John. We are trying to *shape* the young stars being born here ... We are trying to make them more useful. We *enhance*. Preserve. Cherish. Save them from an early death.

'Look, John – I'm sure this was known even back in your hand-axe era – stars come in a variety of sizes. The smallest mass that can compress its core significantly enough to spark hydrogen fusion is about a tenth of the

mass of the Sun. While the largest you can have is somewhere over fifteen times the mass of the Sun. But – and, look, here’s the central point – *the larger the star, the shorter its lifespan*. Useful lifespan anyhow – even when it’s shining in an orderly fashion. A *useful* fashion.

‘OK. So, the very big monsters go bang in supernova explosions. You know about the Sun’s lifecycle. You’ve lived through much of it! I envy you for that ... The Sun will shine more or less stably for maybe a while longer. Then, when the hydrogen fuel in the core is exhausted, and fusion spreads to outer layers, it will begin to balloon, heating up, eventually reaching a red giant form that might expand as far as the orbit of Earth – before collapsing back down to a white dwarf, slowly fusing helium in its debris-clogged core. And then it will just sit there, slowly cooling.

‘Which will leave a big wasted mass of unused hydrogen fuel. The gases in the Sun’s interior never mix efficiently, so hydrogen in the outer layers is never used as fuel. But a dwarf star, like the unloved Proxima, is different. Convective throughout. Small it might be, but it is *very* efficient at using its hydrogen fuel. It has less fuel than the Sun but eventually it burns *all* of it.

‘A very massive star may shine just millions of years. The Sun will have lasted billions. The red dwarfs will last *trillions*. The very smallest will last a hundred trillion years ...’

*Ten to power fourteen*, Hackett mentally translated. He smiled at her casualness in tossing these numbers around.

Taiva said, ‘Gradually all the star-making stuff in the galaxies, in the universe, is being used up. Even this galaxy-collision display we are seeing is wasteful, in a sense. A late show. And the very end of star-making will come at about the same time as the longest-lived stars die themselves – the red dwarfs.’

Hackett frowned. ‘A hundred trillion years. OK. And after that?’

She shrugged. ‘Junk. White dwarfs – the relics of stars like the Sun – brown dwarfs like big Jupiters, black holes, neutron stars ... Dribbles of energy compared to what came before. Leaving little prospect for supporting life and mind.’

‘*Now here’s my plan*,’ Hackett said.

‘Sorry?’

‘Forget it. A joke billions of years old. I take it you aren’t happy with this state of affairs.’



‘Why should we be? The universe is indifferent to us, it seems; it bore us, but it seems intent on killing us – sooner rather than later.

‘Look – we accept what has gone before. But, while the stars still shine – are still being born – we want to make the most of it. At least in this corner of the universe.’ She gestured at the images on the monitors. ‘You see, from this perspective, most of what we predict as the likely outcome of the Andromeda-Galaxy collision, if unmodified, is waste. Rashes of supernovas, just wasting fusion fuel. Bloated stars – yes, exactly like our Sun – that will burn out like candles, leaving much of the fusion-fuel hydrogen trapped in their cooling gravity wells.’

Hackett was impressed that candles still existed in this remote age. But now he saw the plan.

‘So you’re meddling. Yes? You said you use these laser tanks to disrupt big-star formation. You are splitting up the natural, umm, *star seeds*, to create your minimal, long-life versions.’

She faced him. ‘That’s the idea. We can’t get it all – but the combined mass of the Local Group galaxies, our Galaxy, Andromeda and the rest, is about two *trillion* solar masses. In principle you could use *all* of that to create *twenty* trillion minimum-mass stars. These could burn, in relays, for a hundred trillion years each, offering a hugely expanded arena for life, in space and time. So many more stars, so many more worlds to build, so much more time ... And *that* is how we will reach the goal.’

‘Of a hundred thousand trillion years ...’ He tried to think it through.

And she helped him out. ‘At any moment we will have a galaxy of twenty billion burning minimum-mass stars. As the stars fade and die we will replace them with others. That way the interstellar material will be used in an optimum fashion, with our artificial galaxy lasting to that hundred thousand trillion goal.’

He stared at her, and then at the images on the screens, the clump of barely glowing gas, the improvised-looking laser platform. ‘Wow. And it all starts with this – gun?’

‘Indeed. But it *is* just a start ... obviously. What we need to do is perfect this technology, make it self-replicating, and set it off to mine the colliding galaxies. And then, well ... Our job will be done. It will be up to the next generations to continue it – and countless generations beyond, until the stars

finally die. And perhaps even then there will be solutions to be found. We can all migrate to the Substrate ...’

He turned and faced her. ‘Perhaps. But *this* – this is big enough for one generation. I kid around, but I’m seriously impressed. If this works, then you and your people will never be forgotten ...’

His understanding and approval seemed to matter to her a great deal. There was a moment of hesitation.

He reached out and pushed back that lank of hair, covering half her face. She looked much younger, oddly, without it.

Then they fell on each other, dragging at each other’s clothes, her coppery skin glowing warm in the light of infant stars.

They slept on it.

They gave themselves that year.

But long before the year was up, everything changed. The mission was cancelled.

There had been an anomaly.

The anomaly had occurred at a stellar modification site some three light years out from the Sun, and on the far side of the Sun from the position of the *Perseus*.

For now the star in question was attended only by automated craft. It was thought a good idea to send out human eyes.

And apparently the nearest available fast craft was the *Perseus*.

That struck Hackett as suspicious, as was the sketchiness of the briefings he was getting. As if this mission was all but covert, the anomaly somehow politically inconvenient – maybe flights of his rogue craft would not show up in wider registries.

But he wasn't about to miss out on such a jaunt.

Hackett and Taiva Lopic prepared for the trip hastily – but, before committing to another long mission, Hackett forced himself to go over his ship carefully. A veteran of several extreme long-haul flights already, the *Perseus* was far beyond its nominal design limit. And these distant descendants of humanity in the year five billion were wise enough, it seemed, to accept that while they were fantastically advanced over Hackett's time, they lacked the specialist skills required to restore such a craft.

As Taiva Lopic had put it, 'Neither you, I, nor Icsoba of Ambriel would know how to knap a blade out of a flint core.'

The *Perseus* was no flint blade, but the observation was well made.

Meanwhile Hackett still refused to go play in the theme park that was his idea of the Substrate, unless he had to.

At five gravities this trip out was about four years objective, two years subjective for the time-dilated passengers of the *Perseus*. Hackett let himself be anaesthetised for most of it.

And when Hatchett finally woke, and got to a viewscreen, he saw a star – and a cloud of debris.

Taiva Lopic was already on the bridge, dressed in a lightweight, bright orange medical-support suit. She was eating from a deep bowl of what looked like cereal in water. Spoonful after spoonful.

She glanced over her shoulder at him as he approached. ‘I’m not usually this hungry coming out of a Substrate sleep.’

He grunted at that, and glanced over the modern monitors that had been crammed into the bridge of his ship, super-futuristic devices attached wherever there was room. Some of these scrolled with imaged data – this age was fond of multidimensional graphs that evolved as you looked at them. He searched for simple images, for summaries. As far as he could see, the ship was already examining the target star at multiple wavelengths, and was even picking up samples of its stellar wind, a flow of charged particles hurled out by the star’s magnetic field.

Oh, and there was one talking head evidently for his benefit.

‘They’ll be showing me cave paintings next.’

It could all wait.

He went back to the galley for some food himself. He found fruit that looked like bananas, a pitcher of water, and a mug of what looked like coffee and tasted a little that way too.

This was how he had eaten pretty much since waking up in the year five billion. Even the foodstuff of Ambriel had been more familiar. Luckily he had never been a foodie, as he had discovered long after he had left his own Earth for the final time. He had taught himself not to be choosy, to pick something that at least looked familiar enough to be comforting, and ideally not repugnant to the taste ...

He was using trivia as a distraction. It was something else he recognised in himself, especially on waking. Giving yourself time to reflect on the current mission. And also where you had gone wrong in your life.

Then he went back to the bridge.

Now, in the monitors, there was a large, dominant image of that young star, evidently straight ahead – glowing red-hot, not yet yellow or white. Another star struggling to be born out of the disc of interstellar debris in which it was embedded. But, he saw now, this star was surrounded by

technology: a swarm of orbiting factories and habs and engines and those cannon-like platforms, a stupendous human industrial site.

‘Tell me what we’re seeing.’

Taiva glanced at him. ‘Hope you slept well too.’ She indicated the displays. ‘See for yourself. It was just another typical protostar, as far as anybody could tell.’ A tap to bring up historical data, imagery. ‘Remember they are trying to reduce the mass of the finished star? And collect the ejecta, deflecting it away in great ionised streams that can in turn be processed into other small stars later ...’

He put up with the recap. It wasn’t uncommon to come out of coldsleep with a shaky memory, especially of recent events.

‘So they pick a star, like this one, at the right point in its lifecycle. The key moment is just as the core of the birthing cloud, the nascent protostar, begins to collapse in on itself. The energy making it glow right now is from that collapse, the loss of gravitational energy rather than fusion – not that yet. Then – well, you know how they work. Fleets of gamma-ray laser cannon form up and fire down on the protostar, disrupting its accretion process. In fact they collect the protostar’s own radiation, deep in the infra-red, as energy to fuel the lasers. And the operation is sophisticated enough now for the laser cannon platforms themselves to be replicators; they assemble copies of themselves out of the material of the debris disc—’

‘The stuff that would have made planets and moons. So the process uses the star’s own resources to distort its development.’

Taiva shrugged. ‘It’s efficient.’

Hackett wondered why that made him uncomfortable.

He looked more closely at the star they had travelled so far to examine. Its outer layers seethed with twisted and tangled lines of magnetic force, lines illuminated by trails of plasma dragged out of the star’s own carcass. The human machines were tiny black shadows against this light show.

‘Looks like some kind of virus,’ he murmured. ‘Doesn’t it? All that human tech. A virus, which attacks the body and turns its own resources against it, replicating away. A parasite.’ *That* was what was making him uncomfortable.

She gave him an odd look. ‘A parasite? Humanity as a parasite? Maybe you think that way because you’re from an age of parasites, a primitive age

where there really were still dangerous viruses roaming your one and only planet—’

‘Maybe. Or because I’m from a *primitive* age where we still had such *primitive* traits as empathy.’

Her face turned hard, expressionless. She turned away and studied the displays.

He had slept with this woman. At times he had thought he loved her, and vice versa.

He crossed the cabin and rubbed her back.

She said, ‘We’re all primitive. Whatever we age we come from – I think I’ve learned that much from you and your companions. I owe you an apology—’

‘Maybe we need to make wider apologies than that.’ A new voice.

A face had materialised in one of the central imagers – no, a head and shoulders, Hackett saw, a woman’s face, the scalp bare, at her neck the collar of an orange emergency suit of the kind Taiva was wearing. Given she’d reacted to their conversation without delay, she must be somewhere close – less than a light-second, maybe a hundred thousand kilometres.

He snapped, ‘Do I know you? Do you have some kind of authority that allows you to just break into my comms system?’

Taiva grinned. ‘Actually she does.’

After a short signal delay the hologram figure just nodded. ‘John Hackett of the *Perseus*, my name is Sabin Roos. My authority derives from the deliberations of Central Council on Mars. I have been appointed Marshal Pro Tem, and afforded plenipotentiary powers sufficient to resolve the crisis around Star Five Two Alpha. I have downloaded a surrogate into your ship’s banks which has similar plenary powers, in case communication links are broken before the Five Two Alpha situation is resolved ... The designation doesn’t matter. The crisis derives from the anomaly associated with this star. An originating anomaly which turns out to have been only the first observed instance of a wider phenomenon ...’

Hackett knew about Central Council, the nearest thing humanity of this age had to a government. It was mostly a talking shop, mostly consisting of artificial intelligences, memory banks and such – after five billion years you could cite a lot of precedent, he supposed. As far as he could tell this calm,

ancient society functioned pretty well, without the need for a government to do much more than inform. Well, in normal times, anyhow. So the disruption of this star's modification must count as an emergency, and some dusty old book of rules and procedures had been dug out, metaphorically speaking ...

He found he was immediately resentful at this person's bossy tone. This *avatar*. This woman wasn't on the spot, as he was.

Taiva seemed to feel the same. 'We were ordered to investigate the *originating anomaly*, as you call it now. The first protostar to have been observed to – misbehave. We came as ordered. We report as ordered—'

'Good. You have already returned good data. The state, representing the unified governance of mankind, thanks you for that.'

'Oh, come on.' A new voice. 'Give them some credit.'

'Yes.' A second new voice.

New images popped up in some of the displays, now. More faces.

Rava Pogee. Icsoba of Ambriel. His companions across gigayears.

Rava said now, 'John Hackett did not demur at the danger such procedures threatened to his ship, or indeed his personal safety. Or even Taiva's. You know that this is a craft meant for deep interstellar space, not for diving down into a star's atmosphere for samples.'

And Icsoba chimed in, 'You could be a bit more appreciative.'

Hackett was unreasonably pleased to see them. 'You came out to see me? ... *Perseus*. Super-future comms systems. If I start blubbing, edit it out.'

Rava's smile was broad. 'Too late for that, hero.'

'Of course we came,' Icsoba said. 'Hitched a ride with Sabin Roos. We are ... family. You put yourself in danger for the greater good. Here we are at your side, as best we can be. Where we belong.'

Sabin Roos just stayed quiet, listening to all this. Then she said, 'Are you ready for your full briefing? I have to report back to Central Council as soon as possible – although they have already taken most of your data to assimilate.'

Taiva Lopic said, 'About time. You rushed us out of the inner System to the star you called the originating anomaly without even showing us the full data breakdown available when we left.'

Hackett said, ‘Also – why us? Don’t get me wrong. If I hadn’t wanted adventure I’d have stayed home in the twenty-second century. But I was surprised that, given all your resources, you would send my feeble little ramscoop ship on such a scouting mission.’

Roos raised her eyebrows. ‘It had to be your feeble little ship, for various reasons. You could not be properly briefed for security reasons. Here’s the full story. The reason you were sent. Downloading data ...’

The new images were spectacular – images recorded from the *Perseus* itself before its crew had been revived.

It *had* been just another protostar, in its swirling disc of debris, going through the violence of its own accretion process. But, viewed at accelerated speed, a swarming fleet of laser cannon craft could be seen flying into the star-cloud and out again, around it and through it, pouring X-ray-laser energy into its structure – energy harnessed from the star’s own environment, Hackett knew now – so that great gouts of material were lifted off and scattered, creating a nebula, a lumpy cloud around the protostar.

After a few minutes of this, Roos froze the imagery.

The star itself, a dimly glowing red mass, threw shadows up through the cloud of its own material, shadows that themselves must be significant fractions of an astronomical unit long.

‘Shadows as long as the orbital radius of Mercury, maybe,’ Hackett murmured. ‘I’m still – overwhelmed – by all this. To disrupt the formation of a star—’

‘Not disrupt,’ said Sabin Roos, dismissing that. ‘*Modify*. Remember, we are making these stars more useful, more efficient—’

Rava Pogee said grimly, ‘I think Hackett has the right intuition, actually. The right choice of word.’

Sabin Roos seemed to look into Hackett’s eyes – into the eyes of each of them, no doubt, Hackett supposed, through this supersmart comms system.

‘You make judgements. Very well. What I’m about to show you hasn’t been generally released yet, by the way. Central Council don’t want to alarm the general population through any leaks. Strange disruptions at the edge of the Solar System are liable to disturb—’

Hackett snorted. ‘That’s governments for you. Feed you pap, tell you lies, because it’s all for your own good.’



Roos didn't seem offended. But her look was patronising, Hackett thought.

She said, 'I suspect that our modern government, which is essentially a mass consciousness mediated by technology, has little in common with the mob rule of your pre-rational age—'

'Enough!' Taiva said. 'Show us the problem, Sabin Roos.'

She nodded.

And the imagery of the tortured protostar resumed.

'I'm going to compress the timing of events ...'

Now the deconstruction of the protostar unfolded quickly, in sudden jerks and spasms. The little laser ships darted back and forth, took position, and fired their disruptive blasts into the torrid mass of the star, from which gouts of material spewed and dissipated. It took a long time, Hackett saw, even at this accelerated rate. But then, he recalled, it was a big job. As much as nine-tenths of a solar mass might need to be removed to bring the process to a successful closure – and that nine-tenths then collected to be moulded into more new assembly-line mini-stars ...

But something had changed.

He saw a point of light crawling across the face of the protostar's debris disc.

It was following a straight-line path, it seemed to Hackett. But another angle showed it heading almost radially, heading *out* from the young star, leaving a churning scar on the face of the disc.

He leaned forward. 'What the hell is that? A comet?'

'It's no comet,' Roos said. 'Here's a magnification.'

Hackett saw a mass of roiling gas, apparently white-hot, somehow contained, coherent. Given the scale of the whole scene, that mass, still apparently crawling in the image, must in fact have been heading away from the young star at a huge speed.

'We didn't create this, by the way,' Roos said. 'In the process of dismantling the star, I mean. We cut the laser bombardment as soon as this emerged. Yet the – object – is actually accelerating ...'

Hackett said, 'It looks – magnetic.'

*Well, it came from a star, dummy.* Of course it must be electromagnetic, a clump of ionised gases held together by ferocious magnetic fields. That was

what star stuff was. And there were lines of light threading through that mass, in graceful arcs and loops, glowing. Plasma? Magnetic field lines?

‘It *looks* like a coronal mass ejection.’ He glanced at Rava. ‘That’s what we called them in my time. Blobs of highly charged material thrown out of the Sun – plasma, atoms stripped of their electrons, held together in a sort of self-organising mass by the magnetic energy of the plasma itself. Like electromagnetic cannonballs shot out over the Solar System – and usually in the plane of the planets.’

‘And if one happened to hit human space, spacecraft had to land or hide behind shielding, habitats had to huddle behind shields of asteroid rock. In earlier times, even on Earth, with more primitive electrical equipment, you would get overloads – cables breaking, melting. All because of events more than a hundred million kilometres away, and even minor flares at that.’

Roos nodded. ‘That’s the sort of mechanism we are looking at. Where the inner magnetic field of a star destabilises, maybe only locally, and the field lines break through the surface. You can get material thrown into space, great masses of it. We’ve seen similar events elsewhere in the starbirth cloud, all with the same rough dimensions.’

‘We’re calling these things *plasmoids*. This particular mass was typical, about fifty kilometres across, around a hundred trillion tonnes – similar to the mass of an asteroid of about that size.’

‘*And full of structure*, we found. Encoded in the tangle of the field lines, which shift, overlap, cut each other ... Some smart observer tried passing the patterns through language filters. We can’t decode the content. But we can tell there is content in there.’

Hackett frowned. ‘Slow down. *Content*. Do you mean information?’

‘There’s no doubt about it. Aside from its destructive potential, a plasmoid is a packet of information – a massive amount of very dense, very complex information encoded in the tangles of field lines. You can see the regularity if you know what you’re looking for. Information content which changes with time, by the way.’

Taiva, Rava, Hackett exchanged glances.

Rava said, ‘As if it’s communicating. Or learning?’

Hackett said cautiously, ‘That almost sounds like ... life.’ Life, made of star stuff?

Roos shrugged. ‘Some of us think so. Others still differ. But we think this particular plasmoid was created to deliver a blunter message, in this instance. Watch.’

She unfroze the imagery, and Hackett and the rest watched, stunned, as the blob of plasma sailed out of the heart of the protostar system – and neatly targeted one of the laser cannon craft.

Swatted it like a fly.

A long silence.

The blob sailed on, unperturbed, and disappeared from view beneath the debris disc.

Hackett was struggling to grasp what he had seen.

‘OK, OK. I saw the collision. Was that blind luck? Just chance? You’ve got a lot of those cannons hanging around that star. Granted the odds of a collision at random were low—’

‘Your unwillingness to accept a fantastic hypothesis is admirable,’ Roos said.

‘For one so primitive. Go on, say it ...’

‘I’ll show you more evidence. Gathered since your departure. I initiated a search, some days ago. Now we know what to look for—’

The images were broadly similar. A debris disc, a cannon craft’s position picked out by graphic markers – and more plasma masses passing like bullets through the fleet, picking off one cannon, and then another, and another.

‘These have all happened over the last twenty days or so. But there had been precursor events for a couple of years even before your mission. Not recognised for what they were.’

Hackett nodded. ‘And all hits, I’m guessing.’

‘Correct. All save the earliest. And that’s why we sent out *Perseus*.’

‘Right. Best to send the flimsiest ship in the Solar System into a war zone?’

‘Yes. Frankly we hoped the plasmoids, or whatever controls them, might not be able to detect your wispy ship. Or if they did, would not perceive it as a threat. We wanted a close-up study of a few plasmoids without the – distraction – of a stellar assembly fleet. What *are* they? What are they *for*? Do they have a purpose beyond destruction?’

Hackett fumed. ‘You sent us into danger without properly briefing us. I mean, you do know we’d have gone anyway?’

Roos hesitated. ‘Then I ... I apologise. I can see the deception was inappropriate. We can talk of this later.’

‘Damn right we can,’ Hackett said.

Taiva dismissed this with a gesture. ‘What’s important is the meaning of all this. You speak of information-rich objects. Living or not, what is their true function, their purpose? Or if autonomous, what do they *want*?’

‘We have made some guesses as to that,’ Roos said. ‘Once we knew what we were looking at, we went back through the records. We found many instances, not previously recognised. Most of the plasmoid ejections we recorded seem to have had nothing to do with our engines. But some of them *reached other stars*. Packets of plasma are being *exchanged* between these young stars.’

Another eerie silence.

Hackett said, ‘So what are the odds of that?’

No answer.

Hackett said, ‘So. These – infant stars. If they are somehow in control of these plasmoid entities. It sounds as if they’re targeting our installations, or at least firing warning shots. Using a mechanism designed to let them *talk* to each other ...’

‘That’s a big leap,’ Rava said.

‘Not given the evidence,’ Roos said.

‘Trees talk to each other,’ Icsoba said unexpectedly. ‘Why not stars?’

Hackett had to grin at that. ‘Why not? But, you know, I’d find it much easier to believe that we are being attacked by some alien intelligence if it wasn’t for the fact that for five *billion* years humans have been looking for such intelligence, every which way they could.

‘Why, that was one goal of my own original mission. From here to Andromeda and back – and then all the way to the Perseus cluster – all the way we looked for the slightest traces of life of any kind, from microbial smears to Dyson spheres. Nothing, no sign of life remotely like ours – planetary life – no sign of intelligence remotely like ours. We blasted out greetings on every wavelength as we passed between the stars. Why, our ship itself, frail as it was, was a completely unnatural object, travelling at

unnatural speeds, pretty energetic too. Nobody came out to see, nobody pinged us back ...’

Roos said quietly, ‘But maybe somebody did, in the end. One theory we have is that *they* have started to act now, and not before – our star-modification scheme is not new – *because* you came flying back from Perseus in your unique ship. Perhaps *they*,’ heavily emphasised, ‘were disturbed by that. They thought you were some kind of interstellar, even intergalactic visitor – well, you were. And maybe they thought we were going to accelerate our star-modifying projects. Or something. Or it may be coincidence ...’

Icsoba seemed to pluck up her courage to speak. ‘If the stars themselves are alive, then maybe they are fighting back as we try to kill their young, or at least mutilate them. Wouldn’t that be their point of view? And maybe they are having to sacrifice some of their young to destroy us, to save the rest.’ She waved a hand at the wall screens, crowded with images of starbirth. ‘All of them, the protostars, alive. And angry.’

There was a long silence.

‘Well,’ Hackett said eventually. ‘Feels like we just crashed through another conceptual barrier.’

Roos murmured, ‘Icsoba has a point.’

Hackett felt increasingly bewildered. ‘She does? So what do *you* conclude?’

‘I’ve been cheating. We’ve got further in our thinking than I admitted. I wanted to see if you, with your different perspective, might come to the same conclusions. There’s *more* evidence of life, actually.

‘We’ve had the advantage of being able to study these plasmoid bombs – the non-lethal ones – as they have passed through the Solar System. They do have a complex structure, if an evanescent one, of ions swirling around knots of magnetic field lines. It is that complexity and the very dense way in which information is stored – dense, but somehow haphazardly, as if improvised – *that* is another line that suggests to us that these things may indeed be alive, not some kind of artifice. They look *evolved*, not made.

‘And they may even have some control over their movements, we’re seeing now. Once launched they travel at around five hundred kilometres a second – fast enough to cross a hundred AU, across the Solar System from

beyond Neptune's orbit, in a year or so. And crossing such distances, to hit distant, moving targets so precisely, they *must* have intelligence to some degree.

'But the plasmoids can't be *that* smart. I'm dipping into frantic ongoing conversations here, studies of their internal structure ... The consensus is that these are relatively simple creatures. If they are creatures at all. More complex than our microbes perhaps, but not as smart as even simple animals. Of course even this discovery itself is almost beyond belief.

'But the real intelligence must be where they come from – *in the stars*, where many trillions of them, or rough equivalents, must swim through seas of super-hot hydrogen, following field lines embedded in the fusing core, the whole a unity of gravity and electrodynamics, and the core's nuclear spark for a heart—'

'The star,' said Rava Pogee. 'With some kind of collective intelligence arising from the swarms of plasmoids? And if that is true of *this* star—'

'Then it must be true of them all,' Roos said.

Hackett's mind was racing now. 'These fifty-kilometre plasma angels – how many in a star about the size of the Sun?'

'They could survive only in the Sun's upper layers. We think about ten trillion – ten thousand billion.'

That number was familiar. 'And how many independent organisms make up my own body?'

Rava smiled, seeing where he was going. 'Ten trillion.'

And Icsoba smiled too. 'Ten trillion trees on a world of forest.'

'Yes. Maybe intelligence emerges on such scales, with such numbers, no matter what the components, the physics or chemistry ... Well, there you go. Now we know why we couldn't find life in the universe. Turns out it's *everywhere*. The stars, the whole cosmos, is alive. We just couldn't see it.'

There was a brief silence. Hackett thought they must all be exhausted.

He said hesitantly, trying to remember the line, '*I'll sing to you this soft lute, and shew you all alive / The world, when every particle of dust breathes forth its joy.*'

They were all staring at him.

'William Blake. A living universe. What a moment this is.'

Rava asked, 'Who?'

And Icsoba said gently, 'So what do we do now?'

Sabin Roos smiled. 'I'm glad you asked.'

What they did, on the advice of Central Council medics and psychologists – Hackett guessed a mixture of human and artificial – was go back to Mars. Four more years in space. Back to the comforting womb of a reasonably Earth-like planet.

They met the rest of Hackett's motley crew in Martian orbit. The *Perseus* was left in orbit for maintenance.

The crew was brought down to the surface by a smooth and silent landing craft, this time making for the summit of Olympus Mons.

As they descended Hackett again saw how those green forests lapped halfway up the flanks of Olympus itself, as if reaching for the relics of a lost age. Now he seemed to perceive intent in the forests' slow, coherent grasping.

They disembarked in the shadow of that tremendous space elevator stump. Nobody was there to meet them.

Taiva Lopic led the way to what Hackett guessed was a reception building of some kind. As they walked across this theme park cum museum, Icsoba of Ambriel walked with him – a little unsteadily after long spells in zero gravity – and held his hand.

They stared up at the huge elevator anchor.

'What are you thinking?' she asked now.

She was never more childlike, he thought, than at such moments of open wonder, of exploration and revelation, and he had spent a long time training himself not to patronise her.

'I'm not sure. Maybe that all this has to be fake,' he said, waving a hand. 'The elevator tower. It lasted *billions* of years? Really? Even on a static planet like Mars, even this high, all this ought to have been worn away by now. One rainstorm a year, for a billion years—'



‘You’re right, of course,’ Taiva Lopic said, catching up. ‘We have conserved what we can. Subtle repairs and restorations at a nano level if necessary. It’s odd – I know from your conversations, John, that in your time humans thought of themselves as great agents of change. In fact, over the very longest of timescales – over geological ages – humans turn out to be conservers. Of their culture, their history, their own biological forms – even of the fabric of their world.’

Icsoba frowned. ‘You haven’t done a very good job with saving Earth, then.’

Taiva seemed surprised at that dig. ‘Guilty as charged. But we’re working on it. We need to talk about that, actually. So I’ve been hearing – so Sabin Roos has said, after she reported back to Central Council ... There is a strategy. A response to the issue of the living stars.’

Hackett laughed hollowly. ‘Some “issue”!’

They reached that reception centre, set neatly beneath one of the mighty triple limbs of the elevator stump. The building’s doors gaped open as they approached, and a green, living light shone out, a contrast to the ruddy dust of Mars.

Hackett guessed, ‘Some kind of decontamination facility?’

Taiva looked wryly at him. ‘We’ve had gigayears to make our living environment safe on and off this world, Hackett. Not that. Think of it as a homecoming welcome.’

Icsoba let go of Hackett’s hand. ‘That sounds good to me.’ She ran ahead, without waiting for the rest.

Hackett and Rava stayed with Taiva, and walked more sedately through the door.

There seemed to be nobody about, but chairs were set out in a spacious chamber, tables were laden with food – fruit, vegetables, bread, what looked like a tureen of soup. Cups with a range of drinks, water, juices, what looked like but probably wasn’t coffee.

So. A rest stop.

They reached for the snacks. Rava Pogee dug into the piles of fruit and loaded a plate. She always seemed hungry. Hackett tried the not-coffee; it wasn’t coffee; he settled on what looked and tasted like apple juice.

They threw themselves down on chairs – each, Hackett thought, probably glad not to be resisting even Mars’s feeble gravity any longer.

A figure came walking out of the shadows at the back of the shelter, barefoot, wearing a one-piece robe that was even drabber than the usual fashion in this age, as far as Hackett could tell. A woman, sturdy, her black hair shaved off one side of her head, in the usual fashion. He could never have guessed her age.

She smiled at them all. ‘Welcome to our worlds, once again. And thank you for your service, your latest journey. You have contributed much to our analysis of the animate stars. Even if the news you brought back wasn’t what we wanted to hear—’

‘Sabin Roos.’ Hackett stood, approached her, held out his hand.

She hesitated, seeming a little abstracted – as if looking up archaic customs in some invisible database – then she held out her own hand.

He took it gently, shook it, but the texture of her skin was slightly odd. Too cool, too smooth? He filed away the anomaly for future consideration. ‘Well, thanks for your support throughout. You were a fine capcom.’

She smiled. ‘And you’re trying to trip me up, or beat the translation systems. A contact for astronauts? *Capcom*. Yes, that was my role, briefly.’

‘Along with running a planet.’

‘I wouldn’t put it like that. Please, sit ...’

She joined them at their table, nodding at Taiva Lopic, shaking hands with Rava, and Icsoba – who looked vaguely alarmed at the gesture. Slight clumsiness by the council chair to lump together the visitors from the past, Hackett thought, to assume they all shared the same customs, given they actually came from very different pasts.

‘As I said we are very grateful for your service for us so far,’ Sabin Roos said.

And Hackett filed away that ‘so far’. So they weren’t done yet?

‘Your mission was a breakthrough, both in terms of raw information gathered, and for the conceptual revolution it supported. We had simply never looked on the stars as living things, let alone as conscious. They are entities on scales of size and complexity and age utterly different from our own. And yet they are alive ...’

‘Of *course* they are alive; we should have guessed it. As you have said, John Hackett: we have found no other life form like our own, planetary life, life based on chemistry, despite gigayears of technological civilisation, so much searching – not even in another galaxy. We are a fluke, perhaps – a

very unlikely emergence. And yet we never looked up at the stars and *wondered ...*’

‘I think a few dreamers did,’ Hackett said. ‘I’ve been checking.’ Mostly in the library on *Perseus*. ‘A novelist called Stapledon. An astronomer called Herschel ... probably many others after my time. But we never followed it up. Not as a serious scientific hypothesis. Not that I’m aware of.’

‘But it stands to reason,’ Sabin Roos said, ‘if you look at the universe the right way. After all the first stars formed only a few hundred million years after the creation event itself. Stars are everywhere. Whereas we Earthborn, creatures of chemical biology, seem to be unique. We didn’t even evolve until the universe was five billion years old – we are an outlier. Of *course* that is where life and mind would dominate, in that tremendous stellar host, not in a – a thin scraping of planetary scum like us. The stars are everywhere ... The stars are what the universe is *for*.’

Rava Pogee laughed out loud. ‘Scum, though? You won’t get re-elected if you talk about your constituents like that, Marshal of the Central Council.’

‘Pro tem.’ She grinned. ‘You have a point. It’s hard not to be humble, though. We are a side-effect of the universe, not its central function – which seems to be to create star stuff, to form *stars*.’

‘But there’s more, by the way. The stars aren’t just isolated, floating – brains. Now we know that they communicate, through these neuron-like entities we have called plasmoids – and perhaps in other ways we have yet to detect: perturbations in the interstellar medium in which they swarm, created by starquakes, for example ...’

‘They “swarm”,’ Hackett said. ‘Seriously?’

‘We think so. It’s difficult for us to study – well, we’ve only just begun – and these creatures operate on a timescale of billions of years, the timescale of their own lives. So all we see is a kind of frozen image of where they all are at this moment in time. But we can guess at their velocities, from Doppler shifts, from reconstructed trajectories ...’

‘We think the stars use matter outflow – solar wind, even lumps like the missiles they fired at our engineering sites – outflow shaped and pushed out deliberately by a star’s magnetic field. Well, since a star’s consciousness seems integrally linked to its electromagnetic fields, maybe that’s no

surprise. It might take a billion years by such means to deflect your path by a few hundred kilometres per second, planetary-orbit speeds – but so what? You *have* billions of years. There's no rush ...

‘And, yes, we think, they swarm. We know that stars orbit the centre of their galaxy – and that the dark matter in which all the galaxies are embedded shapes those orbits. But they *diverge* from simple orbits. Now we know what to look for, we can see distinct patterns. You don't have to be very smart individually for your combined motion to be complex.’

Memories flooded, for Hackett. ‘*Flocking*. Back on Earth, in my day, when birds could still survive in numbers ... we'd witness a murmuration of starlings. Birds that flocked in huge numbers, casting extraordinary, emergent patterns across the sky.’

Icsoba nodded. ‘A murmuration. I like that. How romantic, John Hackett.’

‘I have my moments.’

Sabin Roos nodded. ‘In fact some of us think these may be more than random motions, more than simple patterns even. More than flocking. Some of us are seeing hints of more complex behaviour, on very large scales. There may be *higher structures of mind* here, which we are only glimpsing so far.’

And Hackett thought that through. Much of the argument about the life and the sentience of stars seemed to be based on numbers ...

‘Why not?’ he said. ‘A hundred billion neurons inside my head, right? And a hundred billion stars in the Galaxy ...’

‘Thinking billion-year thoughts,’ Taiva Lopic said. ‘If so, we are all parasites on an entity too huge, on scales of space and time, for us even to perceive it properly.’

‘Maybe,’ Sabin Roos said now. ‘Or maybe not. There's something we need to discuss. Later, maybe. Or even tomorrow.’ She smiled. ‘There really is no rush.’

‘You have a plan,’ said Rava.

Sabin Roos leaned forward.

‘Yes. We have a plan.’

‘Then tell us,’ Hackett demanded. ‘Now.’

She smiled.

‘Very well. John Hackett. After coming so far, crashing from our past into our present, we think you may be able to help us preserve something of our culture even further ahead. For we think that great changes are coming for us. They must be, given all we have learned since your arrival.’

He thought that through.

‘Is there a subtext there? “Crashing from our past ...” I know you’ve suggested I stirred up the stars by crashing across the imploding galaxies in my magic scoopship—’

‘Well, you certainly stirred things up for us, John Hackett. For the stars? Actually we’re not sure. Opinion is divided on the meaning of these events. Maybe it’s hubristic of us to believe we can be so noisy that we disturbed a culture on the scale of a galaxy.

‘Regardless, our strategy has changed.’

‘I bet it has,’ Hackett said. ‘No more star-lifting, no more tinkering with stellar evolution?’

‘Correct. We have lost a goal, a strategy that would have worked out on galactic scales. To remake the stars ... Well, we don’t *have* the new galaxy. As far as we can see, in fact, all we *have* are the planets of the Solar System. Even the Sun is not “ours”, not if it is a conscious being in its own right. Maybe *all* we have, all we deserve, is Earth itself.’

‘Which is, right now, a ball of molten iron rolling around a swelling Sun.’

‘That’s true. But we have schemes, Hackett. Conceptual at the moment, even hasty – but we think we can devise a new future for mankind, and Earth, which need never disturb the stars again. Not even our own poor, ageing Sun.’

There was an odd pause.

Hackett felt baffled. ‘And you want something of me?’

Roos shrugged. ‘Perhaps. Look – yes, clearly we live in a pivotal age, right here, right now. We are formulating a new strategy for mankind – for all our futures, as far as we can see. And, you see, we believe that the future deserves the right to understand how and why we made these decisions.’

Hackett frowned. ‘And you want me to go out as, what, a living monument to you all?’

‘Something like that,’ Icsoba said, unexpectedly. ‘I know how they feel too, Hackett. You saved me and my people from oblivion, in a sense, from the oblivion of forgetfulness. I am here, to speak of my kind, my age, my culture, my Ambriel – to be proud of how we preserved life through the glaciations. And I am here because of you and your unlikely journey from past to future.’

Hackett felt bewildered. ‘You want me to go on. How far this time?’

Roos smiled. ‘Five billion years. *Another* five billion years.’

Hackett had to smile at Icsoba, Rava.

‘Perseid cluster here I come – again. I ought to buy a holiday home. Never mind. Why so far? Why five billion more years?’

‘Because,’ Roos said, ‘we think that the formation of large stars – large meaning Sun-sized or larger – will be ending by then. Across the universe, I mean. Despite galactic collapses like the merger of the Milky Way and Andromeda – what we’re going through now – the galaxies are going to start to run out of the interstellar molecular clouds that birth the stars. Star formation as a whole will dwindle, stars like the Sun will die – though the miserly red dwarfs will remain, with their much longer lifespans.’

He thought that over. ‘Which is the kind you were trying to promote, here, by messing with star formation during the collision.’

‘Correct. We’ll just keep out of the way. And, look, we will want nothing of those stars but a little warmth, a few human-supporting habitats where the aeons can be eked out ...’

Somehow Hackett doubted it would ever turn out as neatly as that. Not now that the stars were aware of humans, anyhow. And now that humans knew the truth about the stars ... Or thought they did.

Roos said, ‘We want you to be a witness again, John Hackett. Of this turning point in our destiny – in the destiny of the whole Galaxy. But there

has been one objection, raised by some on Central Council.'

He had to laugh. 'Only one? While you were debating my life and the ultimate fate of mankind?'

'One that's significant for you, John. Our medical systems have examined you, as you know. We are aware that you have already endured one previous journey of this duration – this *subjective* duration – and we don't believe you could survive another such journey. Not outside a Substrate store.'

'Bullshit,' he said, glaring around. 'There's an archaism for you. It's my damn ship – I designed it, mostly. It's kept me alive so far, and will keep me alive again.'

'But it won't,' Taiva Lopic said. 'I have travelled with you, Hackett. I have monitored you. It was my input that led to the shaping of this decision.'

She reached out and touched his hand; he could feel the calluses on her palm, the hands of a practical person, a person who had used her hands to get things done, even in the impossible year five billion AD. Somehow it made him trust her more.

And yet he rejected her. He pulled back his hand. 'I'll get by on good old-fashioned coldsleep. I always have before.'

'But you won't again,' Roos said sadly, 'not in that contraption of yours. And as for the Substrate – I suppose I can understand your suspicion of it, to you it must have been as baffling as—'

'As lightning was to my savage grandmothers?'

'Not at all, not at all ... But it *is* very advanced compared to the science of your time. Of course it is. I've researched this, trying to find ways for you to understand. Look – think about what happens when you walk into a Substrate booth. The engines extract a *Description* of you, that's what we call it, a mapping of every atom in your body, every electrical impulse in your brain – deeper than the quantum-mechanical descriptions of your age's understanding. Deeper than that.

'So there is your Description, a frozen slice of your life. But it is not necessarily inert. It is stored in Substrate space, an entirely mathematical construct. But that Description is allowed to move forward, just as it would if it were embodied, in a virtual world surrounded by objects, and people, extending from their own downloaded Descriptions. Extrapolations,

interactions – new memories are formed. The Substrate is a world every bit as rich as this one, but which need never end, not until we finally run out of the trickle of energy it needs ... Your physical body need not be maintained. It can be reprinted, when required.'

'What if it breaks down? Your system. The Substrate.'

'It will not,' said Taiva. 'It cannot. All our technology is embedded with what you would call *matter printers*. And other self-repair systems. The machines are self-aware enough to maintain their own integrity. The Substrate heals ... Actually, the reliability issue is trivial.'

'And what if it *all* goes down? What if some young star's plasma bomb smashes our dark energy sail?'

Rava snorted. 'Then generations of monks make hand-written copies of your Description, over and over, until civilisation rises again. Come on, Hackett. This isn't a logical argument. I'm as old as you, almost, and I can handle it. Why, they even got their translated vocabulary about matter printers from me. You just have some kind of phobia about this – you don't even like the freezer compartment on the *Perseus* that you used on your first journey, and you *designed* that, right?'

Everyone was watching him. 'OK. Shit. I'll get used to the idea. I feel honoured to be asked to do this for you. If I go, whoever wants to come for a ride can go with me—'

'Count me in,' Rava said immediately. 'I want to see this crazy adventure through to the end, come what may.'

'But not me,' Icsoba said. 'Sorry – I butted in. I don't want to go any further. I'll stay here – if you'll let me,' she said to Sabin Roos.

Hackett had to smile. 'Was it the animals on Mars?'

And he could see that Icsoba almost wept. 'Yes, the animals. I didn't know how much I was missing that element of home.'

Roos nodded. 'We will be honoured to welcome you. Your wisdom and experience will do much to enrich our worlds.' But she turned to Hackett. 'I, however, would like to come with you, Hackett. If you choose to go.'

That threw him. 'Seriously?'

'Seriously. I have been chair of Central Council for some years now. And I have tried to steer humanity through this extraordinary crisis, the encounter with the living stars. I have done the best I can. Now I think it's best to leave it to others to carry this forward.' She glanced at Taiva Lopic.



‘You have handled all this well, Taiva. And you have a certain notoriety now after your travels with Hackett. If you do choose to try for a place on Council, I will support you ...’

Taiva shrugged, but Hackett could see she was pleased. And another small piece broke off his battered heart. Taiva reached out and took his hand.

Roos turned back to Hackett. ‘So, John, will you take the mission?’

‘You’re pressing me. But look – this damn Substrate thing. Yes, whether I’m phobic or not, that’s an obstacle for me. Maybe I ought to try it out a couple of times.’

Roos smiled. ‘This is cruel. I apologise, it was my idea. John Hackett, you have *already* tried it out.’ She raised a hand, snapped her fingers.

And suddenly, with no discernible transition, the little shelter was gone, the table with the drinks too.

He was back in the *Perseus*, facing a wall of screens.

Icsoba was here. Taiva too. Icsoba grabbed his hand, steadying him.

Taiva looked him in the eyes. ‘Are you all right? We were all in there with you. Inside the Substrate. Making plans.’

‘I ... you bastards. What a trick.’ He stared at Taiva. ‘I felt the calluses on your hand.’

She gripped his hand again. The calluses were still there.

‘So,’ Sabin Roos said. ‘When do we leave?’

Mela

Years 13 to 6

*Year 13*

On the morning she was due to meet her father, Mela planned to open up her office earlier than usual, and close earlier too.

It was to be a big day, for her. Vitae the priest had taken a trip to the north, deep into the Provinces, rich inner domains of the Empire, and today, so promised the notes he had sent, he was due to arrive back in Deneb. With her father in tow.

The father she hadn't seen since the abandonment of Procyon itself, seven years earlier.

*Seven years.* It had gone by in a blur, of hardship for many, and work and an ever-growing burden of responsibility for Mela. It was sometimes a kind of bleak consolation to her that it couldn't last more than another twelve or thirteen years or so, for that was when the whole world was scheduled to roll up. But then she would be skewered by regret, as if she was wishing away the time left. Time she ought to be spending looking for her remaining family, perhaps.

But there was always the work, the responsibility. Always the queue of anxious, needy people outside her door.

She was twenty-nine years old.

This morning – when she made her way to her office, even though she turned up ferociously early – her old trek friend Gine was waiting for her outside the door, with her daughter Aphe at her side. And they were first of a short line, in fact, already assembled, overseen by a couple of Guards appointed for her by Peri, herself a Town Guard officer now. Same as every day, with bigger queues since the Land Reclamation Declaration had been

passed down the line from the imperial authorities and had got everybody stirred up. She really couldn't blame Gine for jumping the line.

Still, Mela's heart sank, just a little. *Somebody you can't turn away, Mela. No matter what your own priorities.*

She forced a smile, fumbling for her keys. 'Well, good morning. Nice to see friendly faces so early.' Did that sound as fake as it felt? Damn it.

'We're sorry to bother you like this. Aren't we, Aphe?'

'Yes, Mum. Sorry, Magistrate.'

Mela's smile was genuine now. Here was Aphe, once a frightened, vulnerable child, now twelve years old, growing as tall and slim as her mother, with a dazzling grin. Aphe made Mela happier just looking at her – as well as proud. More than once, Vitae had counselled her that it was all right to feel that way: *proud*. Whichever way you looked at it, Mela had played a big part in saving the lives of Gine, Rafo and countless others when Procyon was closed down.

But that was probably why Aphe had been brought here by her mother – whatever it was she wanted – as a bit of emotional blackmail.

She nodded to the Guards, unlocked her door, led her friends inside.

The rest of the line shuffled up a bit.

The inner walls – of some kind of smartwood in this ancient building – lit up as she led them through the hall.

'Come on in. And don't apologise. You never need to apologise to me. And I'm *still* not really a Magistrate, you know.' This was her standard disclaimer. 'To be a Magistrate you need to be trained up and appointed officially by the court at Sirius—'

'I don't think any of that counts any more,' Gine said. 'The real Magistrate around here did nothing for us when we arrived. You got it all sorted out—'

'I did my best—'

'You're our Magistrate because we say you are.'

Mela pulled a face. 'Thanks. I think. Well, I'm better than nothing.' They reached her office. It was just a room, a few chairs, a desk heaped with papers, a jug of stale water.

She sat behind the desk. 'Take a seat. Something to drink? Water, tea ... I need to refresh this jug.'

‘No. No, thank you. We really don’t want to bother you ...’

Aphe was gazing around. ‘I’ve never been in this house before. I’ve never been in a house *like* this before. Do you *live* here?’

‘Oh, no. I share a smaller place with your old friend Vitae and a few others. Much more cosy to be with people. And safer. Not everybody likes the decisions I have to make, you see ... But I do find I need the room here, to work. And people have to wait sometimes, and need somewhere to sit out of the rain.’

‘And it’s not that grand, Aphe, you know,’ Gine said. ‘You won’t remember, but when we came here, we were only allowed into Deneb because there was room, some of the richer property owners had already had permission to go further north, into the Provinces proper ...’

They lived so close to the centre of the world now that the central geography of the Empire mattered. About a hundred kilometres north of Deneb lay the border of this southern Hinterland with the inner Provinces – a border made solid by the Empire’s mighty Wall that, it was said, ran all around the inner territories, centred on the Heartland Mountains and Sirius City itself.

‘When we got here there was a scramble for the very best properties—’

‘Yes,’ Aphe said. ‘Dad says the Guards got the best ones.’

‘True enough,’ Mela said. ‘The Guard commanders anyhow. We Immies didn’t protest. We were just glad to have any kind of roof over our heads after the trek.’

Gine said, ‘She probably doesn’t remember all that—’

‘I remember,’ said Aphe, more darkly.

Mela nodded at her. *I understand.*

‘Maybe we should talk about what we came for,’ Gine said. She had a handkerchief in her hands; she twisted it nervously, a habit Mela had learned to read. ‘Sorry. It’s about Hael. Our son. He’s been drafted by the Reclamation people. You heard about all this, I imagine. They’re drafting folk all over to go work in the fields, and some of the older schoolchildren too – right out of the classroom. It happened yesterday; they came and took him out of school, took him away with a bunch of others. They were Town Guards. Rafo is down at the Guard headquarters now, trying to find out where he is, at least. He’s fourteen years old, Mela.’

Aphe said, 'We didn't get picked up. All the little kids. We just got told about it, the Reclamation. It's so scary. We'll have to go do it some day. They say that we need to work for the *common good*,' she said carefully.

'Education can wait, it seems,' said Gine.

'They send you to a farm.' Aphe glanced at her mother. 'I don't want to do that. Work on a farm.'

'Hael is pretty bright too,' Gine said. 'That's not just a mother saying it. He's too smart for grunt work.'

Mela frowned. 'What about your little one?' Aphe was twelve now. Suma, born just after the trek from Procyon, must be seven years old.

'Fine. She's safely at school. A neighbour will pick her up if I'm late ... Mela – can you do anything? Can you get him back for us? And back at school where he belongs?'

'I want to be a teacher,' Aphe insisted. 'Or something like that. I don't want to dig ditches and stuff. I know the whole world is coming to an end when I grow up. But there's time for me to do that, isn't there? Be a teacher?'

She might have said more, but Gine covered her hand. Gine said, 'When I was your age I wanted to be a joiner. Decorative furniture. I did get to do that, I was trained, but I had to give it all up when we left Procyon. Nobody needs joiners now.' She sighed. 'Or teachers.'

They both looked at Mela with a mixture of hope and helplessness.

And Mela knew she could do nothing for them. Nothing but help them face the truth. *What am I, a counsellor? Vitae should have this job ...*

'The truth is,' she said now, as gently as she could, 'your mother is right. We don't need teachers. We won't in a few more years' time anyhow.' *Because there won't be any point. Because the schools are already little more than child-minding day centres. Because the pupils will never grow up to apply their learning.* She couldn't quite bring herself to say that. 'And there is more important work to be done, just to keep everybody – well, alive. Fit and fed and well. And that's what the Reclamation is, you see ...'

Little Aphe just stared back at her dumbly.

*Please don't cry.*

Mela thought about the line of people outside. She felt she couldn't face any of them. She thought of her father, coming south to the Provinces, a

rare excursion from the heart of empire, maybe bringing her a crumb of comfort, of support ...

Today just wasn't working.

She stood up, impulsively.

'Look. I'm going to shut up shop for the day. I have to meet Vitae and my father anyhow.' Hopefully. 'You come along too. My father is working on the Reclamation project itself, with the imperial government. He might be able to ... to explain it better than I can.'

Gine and Aphe glanced at each other, and stood up. But Gine gave her a hard look.

Mela could read it. *Coward. You're ducking your responsibility.*

'I'm sorry,' she said.

'You're always sorry,' Gine snapped. Then she looked away. 'Oh, I shouldn't ... Of course I know it's not your fault. All right. Let's go talk to the Perseid.'

Aphe was much too grown-up not to have missed the tension, Mela saw. 'But *he* won't be able to help us either, will he?'

'He'll try,' Mela said, sweeping her keys off the table. '*I'm* trying. And that's all you can ask of anybody, isn't it? Come on. Now all I have to do is get us past that crowd at the door. I'll have a lot of apologising to do ...'

She led them out through the house. As they passed, the panels on the walls dimmed one by one, and the rooms fell into darkness.

Before everywhere had got so overcrowded, the city of Deneb had been situated in what had been pretty countryside, just a few kilometres west of the River's course – and easily accessible for imperial visitors, only about a hundred kilometres south of the Wall and the inner Provinces of the Empire, so some six hundred kilometres from Sirius at the very centre.

In fact Deneb was a comparatively new city. Mela had learned that it had been designed and built from scratch late in the Empire's development, as a cultural centre, even a vacation destination for visitors from the larger, inner cities further north. To residents of the crowded Provinces, or even of the capital Sirius, this pretty town in the Hinterland, with a sense of the exotic, maybe, but without any real danger – with the Province boundary and Wall only a few days' ride to the north – was an exciting destination to holiday in, even a place to buy a second home. That was one reason, Mela knew, why Deneb had had room, seven years ago, to take at least some of the Immie march from Procyon. Many of its richer transient residents had already bailed out for the security of the Provinces, or Sirius itself, the very heart of Empire.

Mela, coming late to all this, had actually begun to regard the place with a certain contempt. Deneb was like a toy, a scale model of a proper working town, run by money, not by honest labour. Or it had been.

Contempt, yes. But she didn't forget her undying gratitude that she had been allowed to stay here at all, with Vitae and Peri and Khem, and their straggling band of Immigrants.

And she admitted to herself that, even with swarms of strangers clogging it up, strangers like herself – even with Reclamation gangs now demolishing swathes of housing and digging up parks to make room for yet



more fields of smartcrops – it still had a certain beauty, an echo of a richer past.

Especially at its centre, which was dominated by a dead straight canal that connected the city's heart to the River. Much of the canal was a working waterway – and very busy now, as Immies from the south still came crowding in and the population still grew. So barges and other shallow-draught vessels pushed and jostled their way in and out of the city, bringing food, taking out waste. But that stretch at the very centre of the city was still picturesque, with delicate bridges spanning the canal, and the facades of once-grand hotels reflected in the calm water.

At the foot of one of those bridges was a small café. Vitae had asked her to meet him here. The Perseid, never one for luxury, had found this little spot, come to love it, and always spoke highly of the food and drink here. But then, from the colour scheme, with a lot of emerald green amid the purple, Mela suspected the owners were Perseid sympathisers – though the city's official creed was Starrist, as was the case throughout the Empire.

So the brief note Vitae had sent on his arrival back at the city, saying that he was coming back from Sirius itself, *with her father*, hadn't surprised Mela with the rendezvous he had chosen, at least.

When she got to the café with Gina and Aphe, she found it crowded. It always was – everywhere was in central Deneb, all the time. But, today, in one corner, in the shadow of a wall, she saw the unmistakable green of a Perseid outfit – Vitae, of course. He was talking animatedly. He seemed to be trying to use the tablecloth to make some obscure point; he had rucked it up into a heap, and laid an inverted saucer on top.

And beside him sat a gaunt, taller man, in a drab uniform, but with a splash of Perseid green, a ribbon, on his own breast – and a Magistrate's sigil at his throat.

It was him.

She hadn't seen her father since the chaos of the abandonment of Procyon. At times she'd thought she would never see him again. But here he was.

She thought she was prepared. She wasn't. Leaving Gine and Aphe behind, she pushed forward.

When she got to the table, he seemed slow to react. Even to recognise her. Had she changed so much, in seven years?

He blinked, as if his vision were giving him trouble. And then his eyes brimmed with tears.

‘It is you. It *is* you. I dared not dream – not even when dear Vitae came to Sirius to find me, give me his news, that you had made it here ... Oh, Mela.’ He stood now, and embraced her. He was still taller than her, though more stooped, his hair thinner, greyer – he was more fragile, his embrace weak. She could feel his cheeks wet against her forehead.

She hugged him back.

‘I have missed you so much,’ he whispered now. ‘I thought you were lost. I miss *her*.’

‘Yes. Ish. Me too.’

‘Your mother—’

‘Yes?’

‘I see her rarely. She does love you, you know.’

Mela shrugged. Such words meant nothing.

They broke apart, and he sat back down. ‘Come. Sit. Are these your friends? Local to Deneb?’

‘Not at all,’ Vitae said. ‘Gine, Aphe, join us.’ They all sat, and Vitae snapped his fingers for service. ‘They’re from Procyon too. You might have recognised them, Tenn. The mother at least—’

Gine introduced herself and her daughter. ‘You may not remember me, sir. But I remember you. I came before you once, for the paperwork when my husband and I bought our first home.’

‘Did you?’

‘And later we came to you to apply for our Permits when the Perimeter advance came, but they didn’t arrive.’

‘Did they not? Ah, ah. I am sorry. Well, I saw so many people in that role ... Do you still have the property? Oh, stupid question. Procyon no longer *exists*. Sometimes I feel a little bewildered by all the changes we have all endured, the upheavals. Your husband, though. Is he well?’

‘He’s called Rafo, sir. And we have three children now, Aphe here, and little Suma, seven years old, and Hael, fourteen years old. It’s Hael I wanted to talk to Mela about today.’

Tenn raised his eyebrows.

Mela grinned. 'I'm a sort of Magistrate by default, now, Father. No training, of course, no authorisation. I just try to remember what you did, and do it the same way. Or at least do no harm.'

'Do you, by Perseus? Well, so Vitae here told me. I don't deserve it, but you make me proud. I always did have high hopes for you, little one. High hopes. And your sister.'

'I can vouch for that,' Vitae said. 'She's her father's daughter, Tenn.'

An awkward silence.

'I have always regretted the way I abandoned you on the day Procyon finally collapsed.'

'It wasn't your fault. You were doing your duty—'

'It was agonising not *knowing*, for so long, what had become of you ...' He seemed to run down.

And a sudden shower fell out of nowhere, out of an apparently cloudless sky.

They huddled together under the awning over their table. Staff ran around putting up umbrellas.

Drinks arrived, and a plate of sandwiches, delivered by a waiter with her hair and shoulders damp from the squall. She had protected the sandwiches, though.

Aphe tucked in with enthusiasm. Gine was quiet, watchful – waiting for another chance to press Tenn, Mela suspected.

'Unstable weather,' Tenn said. 'That's something you see a lot of in the Heartland, and even in Sirius ...'

'Ah,' said Vitae, sipping his tea, 'there are good reasons for that—'

Mela couldn't hold back. 'Oh, never mind the weather, Father! Tell me – tell me more about Mother.'

Tenn smiled. 'I see your mother rarely, as I said. She is well, as far as I know. She's working at the centre. Of the Empire, I mean, the administrative centre.'

Vitae grunted. 'Where the money is.'

Tenn pursed his lips. 'I can't deny that. It's as if – you've lived through it yourselves – as if the whole population of the Empire is draining inwards, as the Perimeter contracts. And with that great flow of people comes a similar flow of wealth. In a way it's just as it was in the old days. The closer

you are to the centre the richer you get – until the Tide washes *you* away in your turn.’

Mela nodded. ‘So Mother is doing what she always did. Buying and selling.’

‘But on a monstrous scale these days. An astonishing scale. At astonishing *speed*. It seems the world is quickening, even as the years dwindle down. Not that it will mean anything in the end.’

Mela asked cautiously, ‘And Tabor?’

‘I’ve heard little,’ Tenn said. ‘And that little I’ve had to ask around for. You know that your brother was serving in the Fence Watch, subordinate to the Town Guards, during the abandonment of Procyon. He stayed in that role, officially, supervising the Immigrations north as they proceeded. But then the Procyon Guards, like all the abandoned cities’ militias eventually, were taken into the Imperial Army.’

‘The Army?’

Tenn spread his hands on the tablecloth. ‘That’s all I know. His mother may know more – but I see little enough of her.’

Mela knew she was scowling. ‘He didn’t help us, me, at all at the time of the evacuation. And now he’s in the Army. I bet he’s loving that.’

‘I’m sure he did his duty as he saw it,’ Tenn said, more severely. ‘And still does. He’s still my son. And if he ever needs forgiveness, he will get it from me, at least.’

Suddenly Mela was a little girl again, getting a moral lesson from her father – after all this time apart. Resentment stabbed at her.

Vitae said brightly, ‘Turbulent weather we’re having, you say.’

Briskly changing the subject, Mela saw.

‘Don’t you think? Like that shower just now. And as I was about to explain to your father, I believe I understand why.’ Tenn tapped the rucked-up tablecloth before him, the upturned saucer on the top. And waited.

Mela nodded, half-smiled. ‘Go on, then, Perseid. Tell us why you have ruined a perfectly good table setting ...’

He began to describe what he had learned, in evidently protracted sessions with the scholars of Deneb, some from Sirius itself.

‘Presumably the most learned people in all the Empire,’ Tenn broke in.

‘Maybe,’ Gine said, sounding unhappy, irritated. ‘If only because *they* got a chance at an education.’

Mela patted her hand and murmured, ‘We’ll get to that.’

Aphe looked around for more sandwiches.

‘Ah,’ Vitae said, ‘a fair point. But the best of the modern scholars is named Seviad, once of Rigel – before Rigel was lost. And I know *you* encountered her, once, Mela, when you made your jaunt to the Perimeter, all those years ago.’

‘I remember,’ Mela said. ‘Bright person. Seemed kind. She was out in the country, making some kind of measurement of the Tide.’

‘Exactly,’ Vitae said. ‘And she remembered you. There are many scholars in Sirius, and many of them claim expertise in the Substrate, or Tide as it is popularly known, and its properties. But most of them, as you may have insinuated, Gine, do nothing but rehash their education, look up the theories of their predecessors, and debate them afresh.’

‘But Seviad goes further. Unlike her colleagues, she actually went out to the Perimeter to see for herself – to test, to measure. She has made many such trips, as that wall of destruction has advanced, year by year. As you know. The Perimeter Wardens grew to know and respect her.’

‘And her most startling conclusion is that the Heartland is – hollow.’

Tenn coughed on a sandwich crumb. ‘Sorry! Sorry, Vitae. You told me some of this, but I wasn’t expecting *that*.’

Aphe was frowning. ‘Hollow mountains?’

‘Not exactly, child. I mean that the whole of the central upland, the centre of the world, capped by the Heartland mountain range, is hollow. It is essentially a fold in the Substrate which supports the world – no, not a fold, more as if it has been pushed up from below. A bulge. I was trying to show you, Tenn.’ He closed his fist around his rucked-up bit of tablecloth, and raised it upwards, slowly, miming great strength. ‘And the Heartland itself, the whole upland, sits on top of this hollow *dome* of Substrate. With, by the way, a great thinning of the rocky crust of the world, which everywhere lies over the Substrate.’ He tapped his upended saucer, balanced on top of the mound. ‘Just as you see here.’

‘It makes sense if you think about it. The Substrate supports a kilometre’s thickness of rock, on top of which our world is built. But the Heartland Mountains are much higher than a kilometre. And so it is that,

according to Seviad's theories and measurements, the world's rocky overlay is thinnest – the Substrate is closest – underneath the Heartland bulge itself. So what lies beneath *must* be hollow.

'Think of it! Think of the consequences! You all know, I hope,' and he glanced at Aphe, 'that the Heartland dominates the world's water cycles. No: better to say it *shapes* the global flow. When our River, like all the rivers, dumps its water over the Perimeter at the edge of the world, that water flashes to steam – to vapour – which then ascends and flows back, over the land, to the Heartland – because the Heartland, perhaps because of the high Substrate bulge, is *colder* than most of the world. There the water vapour cools, and rains out, and feeds the rivers at their sources. All of these global processes are controlled, in the end, by the shaping of the Substrate, over which our world sits like a mask on a face.'

Aphe said sourly, 'So is that why it rains on our sandwiches?'

'Ah,' said Vitae, with a big smile for the little girl. '*That* is because of the great shrinking of the world.' He mimed an implosion with his hands, palms coming together. 'It seems to be a principle – so *I* have been told by the mathematicians – that the larger such a system is, the more stable. I suppose you can see why. Our world-platform is now only *one-tenth* the diameter it was a thousand years ago. We can know this quite precisely from the records kept by scholars so long ago – scholars who had actually explored those lost wastes – records preserved to this day. They went out there and *saw* it, explored it from the civilised Heartland to the more remote regions, where once aurochs herds swept across vast smartcrop prairies. And you can see that while you might get mighty weather systems gathering across such a vast terrain, you are less likely to suffer sudden overturns, or showers blowing up out of nowhere, than you are today, when everything is contained and constrained inside a shrinking box of a world ...'

'But even so,' Tenn said, 'the great cycle continues, on other Earths if not this one. A Starrist would say, as the cycle has done for a hundred million *million* years. And on all the Earths of the Thousand Earths.'

Aphe was wide-eyed. 'And what do the Perseids say?'

Vitae smiled. '*We* say that we want to find out for ourselves.'

Vitae was a great preacher, as well as a good friend. But Mela had never quite shared his faith in the legend of Perseus, who would gather all souls

together at the end of time – any more than she accepted the perfunctory answers her Starrist mother had given to her bewildered questions about living stars. To Mela, the world was as it was, and you just had to get on with it.

Still, Gine and Aphe, for a time distracted from their fears for Hael, seemed captivated by all this, Mela thought, and that was all you could expect of a good story.

Aphe asked, ‘So what are they doing about it?’

‘Who?’

‘Well, the Empress.’

‘About what?’

‘The world.’

Vitae grinned. ‘What would you do?’

She frowned. ‘If I were Empress? I’d get a big machine, and climb up to the summit of the highest Heartland mountain, and drill down to see what was there.’

Tenn smiled. ‘So would I.’

Gine asked, ‘And why would you do that?’

Mela knew why, from tales told by her father the lukewarm Perseid – lukewarm compared to Vitae anyhow. ‘Because they think Perseus, who built the world—’

‘Not quite,’ Tenn said gently. ‘Who may have *witnessed* the making of the world, according to our creed—’

‘Perseus himself may be buried in the Substrate. And perhaps at a summit at the centre of the world. Correct?’

‘Near enough,’ Vitae said. ‘There are legends to that end – not quite *accounts*, we have no proof. But isn’t it a logical place, a memorable, fitting place, for his tomb to have been placed? And we want to find out. Wouldn’t you? Oh, it’s all very political. There are factions in court, just like anywhere else, Starrists versus Perseids. But if there’s a chance that it’s true – that we might confirm the existence of Perseus himself, or even *speak to him*, if he lives on as the legends suggest ... Well. Wouldn’t you want to do it, if you could? What would you ask him?’

Aphe, grinning, seemed ready to make a suggestion.

But her mother covered her hand. ‘I would ask why my son has been taken out of school to dig ditches in the dirt.’

‘Ah.’ Vitae sat back, as if deflated. ‘And so to business. I apologise for my enthusiasm. My thoughtlessness in face of your concerns.’

‘But,’ Tenn said, ‘I can *show* you why your son is digging ditches. Come. Eat, drink. The Empress can pay for this, via my salary. And then, we will walk.’



The walk was a short one.

They followed the great canal to a more central bridge, a crossing which led to a green, open space the locals called simply the Park. You stepped right off the smartwood of the bridge and onto cool grass.

It was a pleasant place. It probably always had been, Mela thought. There were people walking. Fountains sparkling in the daylight. Children playing around the water.

But today, in the further distance, she saw something new. A great brown-earth trench, slicing right through the green, from one side of the Park to the other. Like a wound. And she saw people toiling there, maggots in the wound.

The Reclamation in action, she knew. People planting smartcrop for food, not ornamentation. She hadn't seen works on such a scale before, not here.

'Come,' Vitae said. 'It's not far to walk.' Ruefully he added, 'And after all we have all walked a lot further to get here.'

Mela went over to her father and linked his arm.

He patted her hand. 'In a way,' Tenn said now, 'all that's happening now is just an extension of what we have witnessed during our lifetimes. Even yours, Mela. Your own brief – thirty years?'

'Twenty-nine. As you should know, Father.'

'Sorry, sorry. But that was why I was so keen for us to take that trip to the south, all those years ago. I wanted you and your sister to *see* the Perimeter, that ghastly phenomenon which steadily truncates our world. So that you would not be bewildered, disoriented, when it came to us. And I was keen for you to see what was there *before* the Perimeter washed over it all.'

‘The aurochs,’ she said. ‘You took us to see the aurochs.’

‘Correct. And the birds that preyed on them ... But even then, you know, this is, what, eleven years ago? Twelve? Even then the raptors, the hunter packs, were declining fast.’

‘I remember,’ Mela said. ‘And I remember Farrell, the Perimeter Warden, telling me how horses and aurochs and raptors need room, lots of it.’

‘He was right. And there simply wasn’t room,’ Vitae said. ‘Even then. The scholars understand this very well. The great days of the animals of this Earth were probably gone a century ago. All we have witnessed in our lifetime have been – zoos, essentially. Big, open zoos, with the animal populations managed, cross-bred, to keep them as healthy as possible. It was never *natural*. And now, and now ...’

Aphe said, ‘Even the aurochs?’

‘There’s a small herd at the palace, actually. Kept as pets. Their dignity gone with the loss of the land they needed to sustain them.’

Gine said, ‘So the Imperials feed pet aurochs with food taken from the mouths of our children. That makes me feel – conflicted.’

‘There will be more such conflicts to come,’ Tenn said grimly. ‘You speak of the Reclamation. Look – I’ve also seen some of the historical records kept in the central quarters of Sirius. The plans, the projections. And I can see that the population of the world, humanity, has been stable for a long time. It’s about a hundred million.’

Gine frowned. ‘Despite the advance of the Perimeter?’

Vitae smiled grimly. ‘Even so. At first the shrinking of the world must have been very slow, imperceptible over a human lifetime, or more. You just couldn’t walk quite as far south as your parents used to. It’s only in recent centuries, even decades, that the shrinkage of the world has become obvious – has become fast enough for ordinary human perception. And so we have had the migrations, spontaneous at first, organised later, involuntary even later – but, to an extent, they have worked in preserving the human population, or most of it. For a long time there was room to squeeze into, you see.

‘But still the world shrinks. And still all those people have to be fed. You see, every person needs about a hundred-metre-square plot to feed them. And, historically, we know that most terrains that support humans have

given over about a third of the available land space for farming. That seems to be ... comfortable for us to live with. But now, as we get squeezed in tighter and tighter—'

'Oh,' Mela said. 'I see where this is going.'

'As our world shrinks, but the human population *doesn't* – well, the necessary farmland went above that one-third mark about seven years ago. We can still feed everybody – well, we *must* feed everybody. But we need more and more of the available land to do it. You see? That's becoming uncomfortable. And so – this.'

They were close to that great dug-out scar in the grass now. People toiling with spades and barrows, mostly young, female and male alike. There were older supervisors, and a looser perimeter of city Guards, Mela saw now, watching the workers.

'A park becoming a farm,' she said.

Tenn gestured at the labour. 'This is what we must do now. Turn over more and more land to farming. Even within the cities – as you can see. And *that* is the Reclamation. It's that or reduce the population in some other way. And so, you see, we *must* turn more and more of our workforce into farm labourers.'

Aphe frowned. 'And that's why I can't finish school.'

'I'm afraid so, child.'

Vitae sighed. 'In a way these people are heroes. Giving up their own aspirations to feed us all – their family, their neighbours, even strangers they will never meet.'

'If they are all heroes,' Gine said, 'then why the armed Guards?'

'I know why,' Aphe said flatly. 'To stop them running off back to school.'

Gine said, 'I came out here today to see Mela, to see if she could help me spare my children this – toil. Under the eyes of thug soldiers.' She looked Tenn in the eye. 'You work in the palace, or near it. Can you help us?'

'I'm sorry,' Tenn said. 'There's nothing more to say. We are not a fortunate generation. We must take the world as it's given to us.'

'And I'm sorry too,' Vitae said.

They started to walk back, towards the bridge, the centre of town.

Mela came to her father and once more linked her arm in his. 'But all this is just a stop-gap,' she said softly. 'Isn't it?'

‘Obviously,’ he murmured back. ‘Everything we do is a stop-gap.’

‘How long until the world shrinks so much that it can’t feed a hundred million people? Even if it *all* were ploughed up, even the Heartland, even the Empress’s palace itself?’

He looked at her, then leaned closer, and whispered, ‘Six more years.’

‘And then what?’

But he had no answer.

That meeting, the starkness of those projections, stuck in Mela’s mind for a long time, as she lived her life, kept up her daily struggle to help friends and strangers navigate their way through the slow collapse of the city. Of the whole world.

The months, the years seemed to fly by, in a flurry of work. Of ever tightening restrictions on all their lives.

Then, four years after that conversation, Deneb’s own terminal crisis began.

## Year 9

By the eleventh year after her arrival at Deneb, still working as de facto Magistrate – now thirty-three years old – Mela had developed a habit of starting her day with a walk down to Deneb’s grand old park.

As every day, as she left her office she acknowledged the Guards. According to Peri’s orders, Guards were stationed there now as Mela worked or slept, a permanent duty for some years now.

It had always been an easy walk to the Park; Deneb had always been a small place, and it still was today, despite its bloated population. But long before she got there Mela could make out the day’s lines forming up: drably dressed people patiently queueing in the greenery of the Park.

Even that greenery was itself functional now rather than decorative, the uniform green of edible smartcrop waiting to be harvested. It had all been so different when Mela and her companions had first come here, trekking ragged and exhausted from the collapsing southern lands. Even then the Park had retained some of its elegance, still much of it given over to ornamental trees, flower beds, and green, robust grasses – all of them smartcrops of course, but bred for beauty and recreation.

Now, among the rough fields, weary people queued for ration packs, as they did every day. And every day there would be scuffles and arguments when the supplies began to run low, as happened more and more frequently now. The town, despite all efforts at population control, was becoming ever more crowded as a trickle of Immies continued to walk up from the crumbling south – even as the last of its wealthier citizens fled north.

And, worse, the citizens – residents or newly arrived alike – were forced to watch as food gathered from within their own town boundary was *taken*

away, under the supervision of Guards, to be bundled out for export to the imperial terrains to the north. So, in this Park where rations were handed out to one line, tributes were taken from other lines.

The official message was that the compulsory tributes were to be put into a common central store to help the whole Empire manage a desperate future. Whether that was true or not, these donations were deeply resented, and there were regular protests, fights, and occasionally full-scale riots, which Peri and her band of half-trained Guards handled as best they could.

And even as this chaos simmered, this morning, as every morning, the centre of the Park was marked by another crowd, gathered around the eerie shine of the town's main deepshaft, its funeral pit. Even from afar Mela could detect a subtle aroma, like burned spices. The shaft was working today, then, even this early – as it worked every day now, with another line of people, in this Park full of lines. There were few natural deaths, however, day by day. The lines of people she saw were volunteers: sacrificing what was left of their own lives, choosing to leave their overcrowded world, for the benefit of others.

Near the deepshaft pit, she saw a splash of brilliant green that must be old Vitae, the Perseid cleric from lost Procyon. She waved, and thought Vitae saw her. But he was talking to a woman in the funeral line, who looked vaguely familiar to Mela.

On impulse, she walked that way.

A handful of Town Guards supervised the line. But there wasn't much trouble here, not with these people. They were volunteer suicides, after all.

A few people glanced at her as she passed the funereal line, and if she caught an eye she nodded. Of course Mela knew many of these folk. Coming to ask help from Mela, as Magistrate pro tem, would likely have been one of the recourses they tried before resorting to this desperate end. Now they were lining up to die – some of them accompanied by relatives, friends, the people who might be helped by their getting out of the way. A desperate act for anybody, even now, even here, even in this time, even as so many others quietly lined up too.

But if you registered for the deepshafts you were rewarded by the Empire for your sacrifice with food parcels – rich, filling, luxury foods, of a quality even those native to Hinterland towns like Deneb had rarely

sampled before. ‘The Empress’s breakfast’, people bleakly called it. Mela knew that most of these volunteers gave their last-treat meals to their families. Somehow that detail hit her harder than the rest.

She tried to focus, as she approached Vitae and his companion.

Vitae still stood straight, but he looked older than his years. Worn down, Mela thought, by the pain of others which he had soaked up for so long – and his own physical discomfort, perhaps, for he had been an old man even when he had been driven from Procyon, his lifelong home. But now here he was, bravely enduring, even smiling, for the benefit of those soon to die.

But when he noticed Mela, he broke away, walked over, took her elbow, and guided her subtly away. ‘We must talk.’

She frowned, recognising his tone. ‘My day hasn’t even started yet. But you’re about to drop another barrel full of shit on my head, aren’t you?’

He grinned. ‘Pretty much. If only because the Empire has just dumped another barrel of shit on us all. Come. Walk with me. I asked Peri to wait for us.’

‘Where?’

‘To the north, the north side of town. You’ll see for yourself ...’

So they walked that way, towards the Park’s northern boundary. And Mela immediately saw what Vitae meant.

Immigrants. More of them. They came in the usual lines, with carts, many walkers, a few supervising Guards. She saw a line of them coming from the nearest bank of the patient River.

Immies. And they came from the north. Not the starving south. The north.

There was no fence around Deneb.

Even humble Procyon had had its fence to keep out intruders, and stray aurochs. For long centuries, it seemed, Deneb had basked in the protective power of the Empire, so close by; defences were not needed. But there was a fence of sorts now, or at least boundary markers.

Here a handful of Guards, commanded by Peri, supervised new arrivals.

It was messy. Some of the Immies, drunk, violent, or showing obvious symptoms of infectious diseases, were turned away.

Of the rest, Mela saw adults and older children, babies in their parents' arms. Some were riding on low carts – carts pulled by people, not animals, no horses and aurochs, not any more. Many, many people, whole families, all evidently seeking to crowd into an already overpopulated town.

They were Immigrants, then, as Mela had once been. But there were so many of them. And from the north. Her anxiety deepened. *Something is very wrong here.* 'By the bones of Perseus,' she murmured. 'Sorry, Vitae, one of my father's favourite cusses ...'

Vitae smiled grimly. 'If anything deserves a cuss word, it's this, isn't it?'

Now a couple, near the head of the dusty caravan, broke out and marched across to them, perhaps attracted by Vitae's green uniform.

Mela, cautious, beckoned Peri over – Peri in her Guard officer uniform.

The Immie couple were a tall, angry woman with hair dyed a deep blue, and a slimmer man, clean shaven, with a small child in his arms.

The woman snapped, 'Who are you? I saw you watch us approach. Are you in a position of authority here?'

Mela studied the woman. She wore heavy boots that didn't fit, but otherwise a quite elegant gown, sweeping to the ground over blue leggings.



Mela thought her own mother might have worn such an outfit. But not the boots, she thought. Despite the gravity of the moment, she felt herself grin.

She felt Vitae's hand take her own. She immediately felt calmer. *Focus, Mela.*

'This is Deneb,' Peri said calmly. 'In the Hinterland of—'

'Yes, thank you, I know Deneb. A Galaxy-forsaken tourist town, or it used to be. Thank the Living Stars we found our way – and have arrived unharmed. Aside from the handful of inarticulate thugs who accompany us, we have been entirely unguarded, unguided, with no provisions save for whatever supplies we managed to gather before we were expelled from our homes. *Expelled.* And marched down to the bank of that stinking River, and driven, harshly at times, out across the boundary of the Provinces. *Forced,* mind you, to walk here!' She glared at Mela. 'Well, what are you going to do about it?'

Mela felt a mixture of pity and loathing.

Vitae murmured, 'She reminds me of your mother.'

In spite of the circumstances, Mela had to suppress a laugh. She said to the walkers, 'What do you *expect* us to do?'

'Promises were made, by the commanders of these ruffians who escort us. Of food, of sanctuary. Promises we expect to be fulfilled. What is your name, please?' The woman glared at Vitae. 'You. Priest. What is *your* name? Who am I speaking to?'

Mela was aware that many in the rest of the long caravan were slowing, letting this confrontation play out – even if they couldn't hear what was said. Perhaps they all thought this was some kind of welcome, or processing. She could sympathise with that hope. Once, she thought with a pang of shame, she had been just like these people. Just another Immie, needing help. Or demanding it.

But how was she to help now? She couldn't even help those already in Deneb. And now this, Immies *from the north.* The north, where the imperial sway was supposed to keep you safe and fed. The north, where food *extracted* from Deneb itself was being sent ...

Perhaps perceiving her hesitation, the Perseid stepped forward. 'I am Vitae, formerly of Procyon—'

'Never heard of it.'

‘Procyon no longer exists. It was south of here. And now I am of this place, Deneb. And you are—’

The woman glared back, then gave way. ‘I am from Castor. A town of the provinces, three hundred kilometres from Sirius itself. A town I doubt *you* have ever heard of.’

‘Perhaps I have,’ Vitae said calmly. ‘Perhaps not. I come from far from here, as most of us here do, from even beyond this Hinterland. We walked here. We needed help. Now you are as we were. You walked here. Now you need our help. Yet you will not tell us your name.’

More hesitation. Then the woman seemed to fold. ‘My name is Obata. Obata. This is my husband, my child.’

Mela nodded. ‘And I am Mela. I am not a Magistrate here, not formally, for there is no one to appoint me. But my father was Magistrate of Procyon. I grew up watching him work. Now I try to remember what he did, and I do that.’

The woman eyed her. ‘I am an artist. My husband too.’

Vitae said gruffly, ‘You were artists. Now you are Immigrants. Just as we were.’

Obata nodded. It seemed painful for her to speak. ‘We need you to help us. For we have nowhere to go.’

Further back in the line, a child started crying.

People seemed to be waiting, patient. They believed they were safe, Mela thought. They thought *she* was making them safe. Guilt stabbed at her. Who was she to stand here and, even implicitly, offer them anything? *I couldn’t even keep my twin sister safe.* She felt as if the whole world was closing in on her, personally.

*OK, OK. Do something, Mela. Anything.* She stood aside and beckoned Obata a little further out of the line. ‘Bring your husband if you like.’

Obata hesitated. Then she walked a few paces further out of the line of Immies. Mela made sure that the great stalled caravan got a good view of the two of them speaking. And meanwhile Peri and Vitae went over to speak to others in the line.

She said to Obata, ‘From now on you’re in charge.’

Obata glared. ‘In charge of what?’

‘Of all these people. My second in command, if you like.’

‘No! I have no authority, no training – no qualification for the management of refugees, and certainly not so many—’

‘Out of so many, you were the one who stepped out and challenged me. That’s your qualification. Here’s your training. Try not to shout, or get angry. It upsets people. There. You’re trained.’

‘And what authority do you have here? You say you’re not even a Magistrate.’

‘Not legally, no. But I’m the nearest thing. If you don’t like it, stand against me in the next election.’ Knowing there hadn’t been an election since Procyon had arrived at Deneb. ‘But for now, I’m it, and *you’re* it.’ She glanced around, thinking quickly. ‘Take your people into the Park. Even though it’s so dug up – and watch out for the funeral parties – there should be enough room for everybody. Get them to sit on the ground, if you can. Tell people I said it’s OK ...’

She still didn’t like this Obata. She seemed angry, impatient. She reminded Mela too much of her mother and her snobbish contacts from Sirius, back in the old days. But you worked with the materials you had to hand. And at least Obata was listening.

‘I’ll come over as soon as I can. I’ll try to get people working on finding you accommodation. Blankets, some food, at least. We’ll have to think about latrines.’

Obata and her partner exchanged glances of horror. Mela felt a stab of sympathy. For all their airs, these people would soon be digging those latrines.

‘It’s still morning; we have plenty of time before the night. I’ll see what I can sort out now, and I’ll be back. If you see me first, wave, so I can find you. If anybody is ill, if there’s an emergency, get hold of someone – anyone will help – and ask them to find Doctor Selta. Say I told you to ask for her.’

‘Selta. Very well. I don’t like it.’

‘I don’t either. We do what we have to.’

A slight, sad smile. ‘This is quite a day, isn’t it?’

‘How long were you walking?’

‘Twenty days, I think.’

About a hundred kilometres, then.

‘That’s since we were transported from Castor, our home, to the Wall, and then pushed outside. The Wall that was supposed to keep us safe ...’

She meant the Empire’s Wall around the border of the Provinces, a Wall Mela had yet to see.

‘We’ll work something out.’ Mela forced a smile. ‘Welcome to Deneb, by the way.’

Peri and Vitae were still talking to more of the new Immies.

She pulled them aside. ‘So now what?’

Peri said, ‘We have nowhere to put them. These new people. We are already full, curse it all—’

Mela cut her off. ‘You’re missing the point. It doesn’t matter how many there are. *The mob we got today came from the north.* Not the south. Think it through.’

‘... Oh,’ Peri said.

‘They came from the north,’ Mela said. ‘That means the Empire is now *throwing out its own citizens.* Out of the Provinces at least. Dumping them on us to be fed – even as we are forced to make tributes of our own food to the Empire itself.’

Vitae sighed. ‘I know you think I am too much the scholar, Mela, but it has given me a perspective on history, on deep history, on the changes to the world ...’

‘It’s been a masterpiece of strategic planning, if you look at it cynically enough. The Empire is trying to preserve its core at the expense of its periphery, and you have to see all this from that point of view. Towns like *this* are being used as buffers, holding tanks to block Immigrants coming from the south. So to keep us stable, the Empire buys voluntary deaths in the deepshafts with cheap meals. And the tribute, a food tax imposed on us, is no doubt intended to fill up stores *within* the Empire – not to help us in the last days – so the core itself can last as long as possible. *And*, now, in these last years, that core is starting to expel its own peripheral populations to the south—’

‘Which can only overwhelm us,’ Mela said. ‘Quite a strategy.’

Peri and Vitae both looked at her, waiting for more.

Peri asked, ‘Well, what’s the plan?’

Mela had to laugh.

But she thought it over.

She had found satisfaction in her life in Deneb – even if she would always feel unprepared for the responsibilities she had taken on as a de facto Magistrate. Satisfying still, if only because if she hadn't done this then perhaps nobody else could have, and there might have been even more suffering.

But, she had long known, the time would come when even Deneb, this temporary refuge, would have to be abandoned. *She* would probably have to order the abandonment. And that time had been brought drastically closer by today's cynical dumping of more empty stomachs on a town from which the Empire even now continued to extract food tributes.

She heard shouting, a scream, what sounded like something smashing to the ground. A melee was breaking out around the head of the Immie caravan.

The three of them, distracted, stood together another heartbeat.

And, Mela found, she did have a plan. Once again, she was going to have to walk to stay alive. And, possibly, fight.

'We march north,' she said. 'While we still can. We break into their cursed Provinces, into their Heartland if we must. And we ask for our share of the remaining food.'

Peri nodded gravely. 'We must do this.'

'Agreed,' Vitae said.

Mela nodded. 'We'll talk later. For now – back to work.'

Following the noise, they found chaos.

The Immies from the north were proving predictably unpopular. Peri ran straight into a spreading brawl, as citizens of an overcrowded Deneb piled in to make the newcomers as unwelcome as possible.

Mela ran after Peri, towards the worst of the fighting.

When she got home, at the end of the day, she was exhausted – though happily not injured. But she had made some progress, even with the issue of the new Immies. Setting up food, latrines, shelter. Challenging the Empire was still tomorrow's problem, she told herself.

But as the days and weeks passed, she ran out of tomorrows.

Only months later, she had to begin the preparations for an Immigration, once more.

## Year 8

In the final days before the deadline Mela and Vitae had set to begin the trek they planned – at last, north out of Deneb – there was a painful sorting-out.

The Perimeter was now only some thirty kilometres south of Deneb, and advancing north by around a hundred metres every day, on average – *every day*. The end of the world, as close as that. Deneb was doomed. So they had to flee, once more.

But not everybody could travel, just as before. Some were too old, too ill, too frail – and some simply couldn't face the grinding misery of another trek so soon, so few years after the last.

It was morning, in the spring of the eighth year before the end. Selta and Vitae sat with Mela in her office, the front room of the abandoned Deneb city-centre house she had requisitioned as soon as they had arrived from Procyon.

She looked around at the place, as if it might be the last time she would see it. Once this room had been a lounge, and a comfortable one, with a translucent ceiling to let in the daylight, heat provided by a sidebar to the Park deepshaft – and a huge desk, on which Mela could have lain down and stretched out, a desk this morning as ever loaded with her own untidy work piles. The work of years, she realised now.

And this morning she had been more or less chased in here by Vitae the priest, along with Selta the doctor, who had caught Mela trying to talk people into joining the trek.

Now Selta gently counselled otherwise.

‘You have to let people make their own decisions,’ Selta said. ‘It’s only a dozen years since our own Immigration. Everyone but the youngest children, the gravely ill and the senile must remember it. A march now won’t be any easier, will it? Not as we go striding north through the Hinterland, getting closer and closer to the Wall – we’re not exactly going to be made welcome. And besides, when we left Procyon we all had to give up our homes – but we have managed to find a new home here. To *build* new homes. Now, to leave it all behind again – well, it’s hard to face.’

If Selta had a doctor’s grasp of psychology, an insight into people’s minds, Mela thought that Vitae saw into people’s souls. And he had the same advice, expressed differently.

‘You know, you may think that it’s easier to cope with this if you are older, not so near the beginning of your life. I can testify that it doesn’t necessarily feel like that. *The end is coming for us all,*’ he said with a kind of calm urgency. ‘There’s only a few years now, whatever we do, only a few years before we all enter a new phase of existence, if Perseus wills it ...’

Mela and Selta exchanged glances. *If Perseus wills it.*

Mela had always wondered whether Vitae actually *believed* in the mythos of Perseus, who had made the world – maybe – and would rise at the end of time and gather all those lost souls to live with him for ever – *somewhere*. This teaching gave great comfort to many people, whether or not Vitae believed it himself. But now he seemed more earnest than ever. As if, over the years, he had talked himself deeper into the belief system, because he needed it.

Sometimes she heard her mother’s cynical voice advising her from some dark corner of her mind. *If it comforts him, let him think it.*

‘But,’ Selta pressed now, ‘we can’t force people to leave if they don’t want to go. It’s one thing I’ve learned as a doctor. If a patient refuses treatment, so be it.’

Mela nodded. ‘I hear you—’

There was a soft knock on the door.

‘Come in, Gine.’

Mela had known that her old friend from Procyon had asked to see her today.

Now she heard a hesitant shuffle, another shy knock, then the door opened. Gine was followed by Suma, her youngest – an unborn baby when

they had marched up from Procyon, now twelve years old, still a child, but as slim and elegant as her mother. Mela noticed they were wearing fine clothes. Gine's was a silvered suit with high collar, Suma's a looser, more practical outfit, shirt and shorts in electric blue. Not brought from Procyon, but no doubt salvaged from the abandoned property of some vanished citizen of once-prosperous Deneb.

Suma didn't seem overawed to see the doctor and the Perseid here. She ran to Mela for a quick hug. 'Hi, Aunt Mela.'

'Hi to you too. Sit down, sit down ... Would you like something to drink? I was about to make some tea—'

'No, no,' Gine said, sounding oddly hesitant. 'I can imagine how busy you are, with the trek starting so soon—'

'Actually I asked Gine to come today,' Vitae said.

That surprised Mela.

'I thought it might help us – help *you*, Mela. Give you some perspective. Gine came to me to ask my advice, but I found she had made the relevant decision for herself already—'

'*Our* decision,' Gine said quickly, firmly. 'Our decision as a family.'

Mela began to dread what she was about to hear. 'You're not joining the Immigration trek,' she said.

Gine sighed now, and held her daughter's hand. 'Not all of us. No. We talked it through. Aphe, Hael – they wanted to go on.'

Vitae said softly, 'How old are they now?'

'Seventeen, nineteen.'

'An age when you think you can conquer the world. And this is the only world they have. Well, why not? Good for them.'

'Whereas Suma – well, this is her home. She has grown up here. So we decided. I will stay here with Suma. And Rafo and the others will walk north, with you, Mela.'

As she said all this, calmly, rationally, Mela felt her heart break a little more. Remembered how she had lost Ish, her own sister. She forced herself to smile at Suma. 'I'll look after your big brother and sister for you.'

Suma smiled back. 'And Dad. I'll take care of Mum.'

Vitae and Selta exchanged glances.

Mela hesitated, aware of their advice. Then she said softly, 'Of course. I'll help any way I can.'



Vitae said, ‘Mela, I don’t think you need any more advice from two pompous buffoons like us. You have it all in hand – as you always do. We’ll let you get on with your day.’ He stood, came over to her, patted her hand, and murmured, ‘Ish would be very proud.’

So they left her alone.

*I just listened to a close friend admitting she is intending suicide, essentially, with her little daughter.*

Usually her paperwork was a distraction. Today it seemed an absurdity, however vital in itself. She rushed through it as fast as she could – mostly emergency allocations of medical supplies and food.

Then she went out for what she called her tour, a daily walk around the heart of the city.

All this was routine, even a habit. She picked a different route every day, firefighting problems large and small as she came upon them.

This day she visited the town’s east gate, situated close to the River’s west bank, where the preparations for the Immigration were already underway. Heaps of provisions – food, clothing, blankets, water bottles, carts and travois – were gathered by the gate day by day. Boats and rafts were being drawn up in the city’s canal, or on the River itself.

Mela knew that most, or all, of the city’s remaining wealthy inhabitants had already bought themselves passage into the Provinces – some had bragged of being welcomed into fabled Sirius itself – leaving, as ever, the poor, the lame, the destitute, to fend for themselves.

Which was where Mela came in. Even as she approached she was hailed, called over, waved at, to sort out one niggles after another.

She put on her competent face and walked in.

That night, when she tried to sleep, she thought she heard the Perimeter itself, advancing steadily, steadily. A crackling, crunching, crumbling sound as it gobbled down the substance of the world. *Her world.*

Sometimes she felt like going to a deepshaft herself, and joining the line. Or, even simpler, of walking south out of here, just a few kilometres to the Perimeter. And *throwing herself in*, into the Tide, just falling in with all the bits of bedrock and sod and collapsed, shattered buildings. Fall, fall into the light, and get it over.

Over and done with the huge responsibility she felt.

She wondered where her father was right now. Deep in the bowels of Sirius City, perhaps. Was he thinking of her?

She covered her head with a blanket. Thinking of him, sleep came.

And, after not many more sleeps, the new Immigration began.

On the morning they were to start, Mela locked up the house she had used for so many years – locked it for the final time, and patted the front door. ‘Thank you,’ she whispered to the house.

Then, her own small pack on her back, she walked through Deneb, following its picturesque canal east through the Park – something else she was doing for the last time – and out of the city.

When she got to the junction of the canal with the River, she found many boats and barges assembled – many dug out of storage or otherwise abandoned, hastily repaired, sad relics of a more prosperous, outward-looking past. And today they were already loaded with people, those who could not walk well if at all, and with the goods the much larger number of walkers would need for their upcoming trek: food and fresh water, clothing, medical gear organised by Selta and her team, blankets and shelters for the long overnight stops to be handed out by the Guards.

This armada of boats and rafts had to travel upstream. The plan was, a hundred kilometres to the Wall, twenty days at a very slow human walking pace, since humans were the only draught animals available now. At the Wall they would presumably have to negotiate passage to go further, or arrange some kind of licence to stay. *That* was a problem for the future. For now, it was goodbye to Deneb, another temporary home.

And the moment of departure came.

The senior Guards walked the line. Cries of ‘Ready!’ rang from craft to craft.

From each boat and barge and raft stretched ropes for the dragging, reaching to the River’s banks on either side. Once horses or even aurochs would have done the pulling. Now the ropes were slowly, reluctantly, picked up by human teams, eight or ten in each, with a nominated leader.

They wore thick jackets and heavy gloves, and now they were pulling the ropes over their shoulders, tentatively bending and hauling as they had scrappily rehearsed.

These haulers crowded the tracks close to the River itself. Further from the banks there were more crowds, people preparing to walk, some laden with their own burdens: possessions, children in arms, invalids on human-drawn carts and travois.

There was a final chorus of shouts. People leaned into their ropes.

The vessels inched forward. It had begun.

Mela would take her turn at the ropes later. For now Mela found Vitae, and they started the walk together, inspecting the march.

At least the tracks along the banks were good, she observed. This far upriver, deep within the Hinterland, the tracks and roads were generally broad and well laid, if in need of refurbishment after decades of neglect. They were far superior to the tracks around old Procyon, Mela thought, let alone those which she had followed further downstream when she had made her memorable journey to the Perimeter with Ish and her parents, all those years ago. A journey into lands now vanished altogether, existing only in her memory, she supposed.

And she was thinking of that journey when she heard a sharp, familiar holler coming from further south.

Looking that way, she saw Khem, the river-boat driver, marching along the bank towards her. Khem waved. That red hair was as vivid as ever – and Mela could see she had that usual sceptical look on her face, visible even from afar.

And Mela, Magistrate pro tem of a whole crowded city for years, felt as if she was still a naïve seventeen-year-old. She waved back.

Khem yelled now, ‘Yes, by Perseus’s balls!’

Beside Mela, Vitae grinned. ‘Not hard to guess the question for that answer.’

Mela yelled, ‘Here to help? You’re late. We’re underway.’

‘Are you? Could have fooled me. Let’s do this properly.’ Khem jumped onto a laden barge, found its highest point, and waved her arms. ‘Ready? Goodbye, Deneb, and good riddance. We will always remember those we left behind. But for now – north! Let’s go! Pull! Pull! North, north ...!’

She got a few ragged cheers, a bit of applause. But then she began a steady, regular chant: ‘Pull! And pull! And pull! And pull ...!’

The haulers, responding, remembering their cursory training, began to lean into their ropes and harnesses, and, with more coordination, pulled, pulled to Khem’s rhythm. Painfully slowly, the boat began to move that bit faster.

And then the one ahead, and the one behind, as the crews caught the rhythm. Khem leapt off the barge and ran up and down the line, clapping her hands, yelling, setting the pace. Nobody dared defy her, Mela thought – *she* certainly wouldn’t.

And as the boats and barges and rafts began to move, so did the great crowd of walkers on either bank, picking up their bundles, forming into little bands – pairs or family groups, maybe – and they began to plod their way north, paralleling the River’s course, moving just as slowly as the heavy boats.

Vitae murmured to her, ‘You should stay a little longer. Let people see you, even the stragglers. Let them feel part of it all.’

Mela was sceptical. But she stood back. Forced herself to smile, to wave, so everybody would notice her.

‘A hundred kilometres, though,’ she said. ‘With all *this*. And that’s assuming we pick up no problems—’

‘We only need manage five kilometres a day. That’s the plan. We did it before. All the way from Procyon to Deneb, remember—’

‘When things hadn’t broken down yet. When we had still been living sensible, ordered, well-provisioned lives, and had enough to eat, and—’

‘And we had just as fine a Magistrate as we have today? Don’t belittle your own achievements, Mela; it’s a bad habit. And anyhow we are where we are, and we must do what we can. So wave, and smile, while I lace up my walking boots ...’

So they walked. For the whole day.

Then another day.

And another.

Even if the act of walking was the same, this was definitely *not* as it had been before, when they had walked up from Procyon to Deneb, all those years ago. The land itself had changed, Mela thought, changed qualitatively. She had to remind herself that this was the Hinterland, or had been, and she was approaching the centre of the Empire – the centre of the world itself. Even just a few decades ago she would have been walking through a land of riches and wealth and luxury – splendour, yes, surely splendour. Cities as far above Deneb in quality as Deneb itself had surpassed poor, remote Procyon. A landscape criss-crossed by aurochs trains marching along fine roads, and the River itself would have borne glorious barques, perhaps carrying Sirian officials – or the Empress’s own family.

Now all was, if not gone, then drastically diminished.

The first town they came to was abandoned. It looked plundered. Some buildings were even burned out. Wild smartcrops were breaking through the crumbling road surfaces.

As the filthy, overloaded, overcrowded barges were hauled upstream along the River, Mela joined a foraging party going into the town. The party was led by Khem, who knew the landscape better than anybody else here.

In the town itself, though the foragers searched the surviving buildings, there was little of use. You rarely saw medicines and such, although usable clothing, footwear and blankets could be scavenged.

And around the town the ground was scratched bare. The foragers from the Immigrant column had to fan out far across the countryside to find smartcrop patches to raid for food.

As this work went on, Khem took Mela's arm and pulled her aside. 'Been here before. Come see something.'

She led Mela back through the town.

It had been set out in a rough circular plan, Mela saw, with concentric avenues connected by radial roads. Khem walked briskly towards the centre – and Mela could guess what she would find here, before she saw it.

A hole in the ground. A silvery hoop at the lip.

'A deepshaft,' she said. 'The town cemetery?'

'Probably the only one in a place this small. But it still works. See? Still open.'

'I think I imagined the towns here would be rich, prosperous. The way we used to be.'

Khem shook her head. 'You have to think of it the way it looks from far Sirius, at the very core. This edge place, by the river, is where the likes of us were always going to encroach first towards the Provinces, when things got bad enough. So they struck first, the Imperials. They closed down these towns – all around the outer border of the Provinces, all around the world – and, having bled us dry already, shoved the inhabitants out and onto us. So that we might get overwhelmed before we could do anything about it. *And* you'd create a thick band of wasteland, just inside the Province-Hinterland boundary, stripped of people, towns, food. And so when we come wandering there's this – barrier – to get through.'

Mela was shocked. 'Could they be that brutal? The Imperials. Even sacrificing their own outer territories, to save the core a bit longer?'

Khem shrugged. 'You ever seen a person die of the cold? Happened to a crew member of mine once, a freak ice storm. The body shuts down from the outside, the limbs, the flesh, sacrificed, trying to keep the inner core hot ...'

'Just like the Empire.'

'Looks like it, doesn't it?' Khem slapped her on the shoulder. 'Don't give up. We'll get through this, and there will be richer pickings ...' She pointed at the deepshaft. 'This, though. You always see it this way.'

'What way?'

Khem glanced around, at the decaying, abandoned buildings, the gleam of the hoop. 'I've seen a lot of the country now, going up and down the damn River, and even away from the water, on jaunts like *this*. There's an

imperial order that when a town is abandoned – or any settlement, any place large enough to host a deepshaft – then you have to leave the shaft open. That’s in addition to stripping the place of everything remotely usable to an Immie. Nothing left to eat, nothing to scavenge. *They burned the land*, ahead of us.

‘And all they left for us, on the Empire’s orders, are deepshafts where we can throw our dead or dying.’ Khem looked grim. ‘Or at least, that’s how it looks to me. They don’t want you lot showing up at the walls of Empire: you and maybe hundreds of other groups of Uncivilised staggering up from the south – maybe from all around the world, if the geography allows it. Stumbling up and demanding food and clothes and medicine and shelter and such. They don’t want *that*, because that would mean *they* would have to share. Whoever *they* are. So, this – a deepshaft to jump into if we feel like it, to save them all that trouble.’

Mela found she was clenching her fist. ‘This is the attitude they have always had to us. I see it now. Even when I was looking over my mother’s shoulder at her work, all those years ago.’

‘So how does that make you feel now?’

‘Like I’m looking forward to showing up at their walls.’

Khem grinned. ‘Good answer. Let’s get back to the boats.’



Days passed. They marched, and marched. Hauled on the barge ropes, turn and turn about.

Mela always insisted on taking her turn with the tow ropes. She could rely on her friends, Selta and Vitae and Khem, to flag up any Magistrate-type problems she needed to handle before they blew up – arguments over provisions, or over a turn hauling the barges, or a medical emergency that needed to be a priority.

She estimated that on average she was spending a third of the day on the ropes, a third being a Magistrate, and a third flat out unconscious in sleep.

Meanwhile the River's character changed.

Physically, almost imperceptibly, it became faster and deeper day by day. They were after all following one of the great rivers that drained the Heartland Mountains themselves – and the closer they got to the source the more powerful the flow. And the harder they had to pull against that flow.

They began to see other traffic. Barges like their own, smacks riding the wind on grubby sails.

They passed through more towns, most inhabited still, some larger than Deneb, some smaller – some apparently as rich as Deneb must once have been, some shabbier, places of docks and industry. And all crowded, with people, children, who seemed to swarm everywhere.

The caravan from Deneb was not welcome. The river here, with paths on either side, was enclosed by fences and watch-houses, where Guards in uniforms just like those of Procyon – though with more flashes of Imperial-Starrist purple – stood and glared at the passing Immigrants.

And all around these settlements, there was nothing but field after field of smartcrop, everywhere diligently gathered by people as dusty as their fields. Still paying tithes to the Empire, Mela supposed.

Even so Mela thought she got a sense of how this place must have been, once, when the Perimeter was a remote nightmare and this place buzzed with the business of empire. This stretch of the River, she imagined, would have been crammed with grand craft, and gaudy yachts – sights *she* had only seen in picture books, in distant Procyon. All gone now. She felt a savage twist of envy, of a kind of misplaced nostalgia for a world she had never even seen.

On the eighteenth day out of Deneb, those with keen sight claimed they caught their first glimpse of the Wall, a pale straight line below the Heartland Mountains themselves beyond, peaks in the blue sky.

On the twenty-fourth day they established a camp, close to the Wall.

And there the days turned to months.

The months to years.

*Year 6*

The gondola bearing the imperial emissaries, festooned with lanterns, was visible long before it had emerged from the deep shadow of the Wall.

Mela, with Vitae the Perseid, stood quietly by a pier on the River's right bank, braced for their latest confrontation with the might of the Empire.

Mela's heart thumped. Two years after arriving at the lee of the Wall itself, she would have hoped she had got over her sheer disabling awe at this mighty structure, and the mightier state it contained and protected. Not yet, she hadn't.

And the day was uncomfortably hot – the days always seemed hot now, as if the weather was itself preparing for the nearness of the end, only six years away. Mela knew that Vitae and other scholars would call that anthropomorphic nonsense. It was all a matter of the collapse of weather systems which had once spanned thousands of kilometres, and whose energy had now been trapped inside this shrinking box of a world.

But the heat, and its causes, didn't seem to concern Vitae right now. He just stood there, though he was visibly burdened by his heavy green cloak – the cloak of a Perseid, battered and stained, which he always insisted on wearing in defiance of the Empire's official Starrist creed and their ban on such costumes. Waiting, waiting.

Seeking to distract him, Mela murmured, 'I wonder why they always arrive late.'

'Ha! Because they can,' Vitae said, his voice frail, his gestures jerky, graceless, as he leaned on his stick. 'The Sirians do this because they can.'

'Or think they can,' Mela murmured. 'For now.'

Vitae dropped his head wearily.

Bored, restless, Mela took a step back, and surveyed the great sweep of the Wall, and the River that cut through it.

To her left, the bank of the River. Behind her, not far downstream, a low footbridge strode across the water – evidently very ancient, maybe a relic of some community lost in an antiquity before the Empire had even felt the need to build its excluding Wall. The bridge had enabled Mela's small community to cross the River as they wanted, and spread out a little on both banks, increasing their access to the water – which was why they had settled just here.

And from here the Wall itself, crossing the River, had the aspect of a huge bridge too, with low, wide archways that spanned the flowing water, and, over the water itself, supported an imposing, blocky tower. She knew that the whole length of the Wall, a structure five metres tall, some ten thick, was riddled with internal passageways and chambers – many of which had windows opening out on the Hinterland, this buffer around the core Provinces of Empire. Narrow windows, like slits, handy for the deployment of weapons, Peri had observed.

And, to left and right, that complex face stretched into the distance as far as she could see – indeed, further, she knew.

This Wall surrounded the inner Empire, at a radius of five hundred kilometres from the hub of the Heartland Mountains, enclosing the capital and the rich, sprawling inner Provinces. A single structure some three *thousand* kilometres long. And the circle it formed overall was so immense that when you looked to left and right it appeared to the naked eye to be a dead straight line, stretching from horizon to horizon.

Its features were more or less identical, apparently, every pace of its length, that complex fortified face – a stunning achievement in engineering and control – but it was only here, and at the crossings of the three other major rivers, that such a bridge-tower had been erected.

And now, at last, slowly travelling under the bridge-tower, the Sirian boat emerged into the light.

A flat, broad gondola, it carried two officials in imperial purple, two muscular-looking Palace Guards – one male, one female – and three boat workers, two of them equipped with long poles for pushing the craft along, one at a tiller to steer. Once clear of the Wall, one of the polers threw out ropes and fixed bow and stern to the low, simple dock.

Mela took one step forward. She knew the etiquette by now. She was not allowed to board the gondola, nor would the officials it bore set foot on firm ground outside the Wall. They would have to shout, across the water gap.

Mela recognised neither of these officials – although one, a man, his face covered by some elaborate mask, had a stance that seemed oddly familiar. She couldn't place the memory. She had encountered a lot of such officials in the time she had spent here, as she patiently tried to negotiate with an empire. An enterprise that sometimes felt as futile as arguing with the weather.

Now the woman, her face caked in some kind of cosmetic, wearing a broad-brimmed hat and Starrist-purple cloak, stood cautiously and walked the length of the gondola, approaching Mela. Mela had the impression that she was the older of the two.

'You are a representative of the illegal Immigrant settlement.' Her city accent was heavy in Mela's ears.

'I am Mela, duly elected Magistrate of New Deneb.'

So she was. And, paradoxically, even though the imperials refused to recognise her office formally – would not even recognise the new name the town's current inhabitants had given it – Mela was the only citizen the imperials would speak to. As Vitae and others had pointed out often, this double-thinking made no sense. Mela was coming to think that nothing about this Empire at the end of the world made any sense. She had to deal with it anyhow.

The woman didn't bother to acknowledge Mela's title, or give her own name. Without preamble she said, 'You are aware of the food tithe imposed by the proper Sirian authorities, in return for permission to make your settlement here, in the Hinterland of Empire.'

'I'm aware of it, yes.'

'You are aware that the due date for the latest stage payment was three days ago—'

'Were *you* aware? Given how much you want to take from us, I'd have thought you'd bring a bigger boat.'

Behind her, Vitae snorted laughter at that.

She risked a smile. Vitae was always a good audience for her jokes.

The official's heavily made-up face betrayed no emotion. 'Given the precedents, we had every expectation that you would not fulfil your

obligations today, as you have not on several of the due dates recently.’ She stepped cautiously back, grasping the arm of a boat worker. ‘Sanctions will be imposed. You will receive a formal notice—’

‘Is that it? A snarl and a dismissal?’

Vitae stepped forward, angrily gesturing with his stick. ‘None of this makes any sense. You know that when we came here the land was barren, carelessly stripped by your Wall troops among others. You know that every smartcrop plant growing here now was planted and nurtured *by us*, for our own use. We are refugees. We have children, old people, sick. We can barely support ourselves, in this thin strip of wasteland that is all that survives of the world outside our Wall. Fifty kilometres from here to the Perimeter, lady. Fifty kilometres to the end of the world! But *we* survive, and ask nothing of you. And *you*, you with your gaudy coat and painted face, demand tithes of us for the privilege of staying here? *Where else are we to go?*’

‘Enough,’ Mela murmured. She drew him away. She could feel he was trembling with anger.

The Sirian official had coldly watched this performance. ‘You will receive the notice. I suggest you pay it full attention.’

Mela looked back calmly. ‘It will receive the attention it deserves. Come on, Perseid.’

The gondola pulled away from the dock. Mela and Vitae turned for home.

But Mela thought she heard a noise from the receding gondola, murmured voices, a clatter as if somebody was moving around. She didn’t pay the imperials the compliment of looking back. Some fault with the gondola, probably, or with its handling. She didn’t imagine the Empire ran its river craft any more competently than it seemed it managed its affairs with its citizens – those beyond the Wall, anyhow.

‘Just keep walking,’ she murmured.

Vitae, still trembling, walked with her. ‘My weakness shames me. But well done. You handled them well. Strong, but polite. Controlled.’

She shrugged. ‘I can be diplomatic. I find it works better than the alternative, in the long run. As I learned from you. Even if it doesn’t feel so satisfying.’

‘... that’s my girl ...’ A breathless voice, pursuing them.

Mela recognised the voice immediately, though she hadn't heard it since Deneb. A voice she had never imagined she would hear again.

She whirled around to see.

It was the other official from the gondola, the male, walking along the bank towards them. Just the fact that he had broken protocol by climbing out of the craft was shocking. And as he limped forward, his face still masked, he kept talking. His voice was muffled – but so familiar to Mela.

'I don't imagine they will chase me back – one less mouth to feed if I defect – and I was never terribly good at this sort of assignment. Never very good at delivering threats, implicit or otherwise—'

'Stop! Stop talking! *Is it you?*' As he came up to her, she reached out – hesitated for one second as she was about to manhandle an official of the Empire – and then pulled his mask away.

He was even older now. He wore a strange half-beard, covering only the right-hand side of his face – some bizarre Sirian fashion, perhaps.

But it was Father.

He pulled off the mask. 'Enough of this,' he yelled back at the boat. 'I resign. You hear me? I won't help you browbeat my daughter into starvation. *I resign!* And if you hear me, *Sergeant* Tabor, tell your mother!'

*Tabor?* Mela's brother? And a mention of her mother ... It was a whirl of unexpected information, the first since her meeting with her father three years before. So even Tabor had made it to Sirius. She wasn't alone.

Suddenly she was twelve years old again.

She collapsed into her father's arms, and soon he was weeping too.

Vitae the Perseid stood to one side, and rubbed their backs, gently. 'Come along. Let's get you both home. Such as it is ...'

As they walked away, Mela glanced back at the receding gondola. Nobody tried to bring Tenn back, but the woman's posture was stiff, redolent of fury.

And – Tabor? As she calmed, Mela realised that if it *had* been Tabor in the gondola, he hadn't acknowledged her existence, not by the slightest glance.

It took daughter and father long minutes before they could walk easily at all, let alone make the couple of kilometres' trek back to New Deneb. Tenn seemed frailer to Mela, more so than the more elderly Vitae. He clearly

wasn't used to walking much, and leaned on Mela the whole way. And he barely spoke.

He looked so *old*.

Maybe this was nothing new, she thought. Thinking back now with an adult's perspective, she realised Father had never been strong, physically or psychologically. He had always just coped as best he could, even while putting the interests of others ahead of his own – not just his family, but those who relied on his services as a Magistrate. Well, that core of endurance still seemed to be there, though his strength seemed to have drained still further.

But when they got back to the camp, Mela was immediately aware that she wasn't going to have a lot of time to luxuriate in the moment. Or even to tend to her father, or get Selta to look him over.

Because there was a cloud of dust on the horizon, coming out of the east. She overheard runners gasping out their news, of a band of people steadily walking towards New Deneb, along the line of the Wall.

'What now?' Vitae murmured. 'What now?'



Mela brought Tenn back to the small smartwood shack she shared with Selta the doctor.

Selta wasn't here, but a handful of people, waiting for the Magistrate and the doctor even so, just stared.

Once in the shade, Tenn sat heavily, breathing hard, his face pale and drawn, the crumpled mask in his hand. The hem of his Sirian robe was dusty and scuffed. He barely seemed aware of where he was.

He reached out to his daughter, tentative, wordless.

She pulled away, and guilt stabbed at her. 'I must go. I have to. There is a problem.'

Vitae nodded gravely. 'You're the Magistrate. There are always problems. Of course you must go. I will stay with him as long as he needs me.'

'Thank you. Thank you.' Still she hesitated. 'If I see Selta, I'll send her back—'

Vitae patiently opened a water flask, poured out a little into a cup, gave it to a grateful Tenn. 'Go,' he said calmly. 'We old men will be fine.'

Without allowing herself to think about it further, she ran out of the shack, heading east.

Where that cloud of dust was rising higher, the body of marching people looming larger with every moment.

The townsfolk of New Deneb were gathering now, watching the newcomers approach. Some were bringing weapons, Mela saw with dismay – just sticks, rocks that fit into a fist. But weapons even so.

Mela had done her best to discourage the use of weapons in her new settlement when they had arrived, and had created caches for the weapons

they had carried, or improvised on the march. Now she wondered whether that had been wise.

‘I never wanted to be a general,’ she muttered as she half-ran, trying to outpace the advancing citizens.

‘Mela.’

Here was Selta, the doctor, running up, right in front of her.

‘I’ve been looking for you,’ Selta said, breathless. ‘I saw you coming back, with a Sirian official. He looked ill—’

‘He’s my father.’

Selta did a double-take. ‘Seriously? But you told me you haven’t seen him since—’

‘Since Deneb. A long time ago. I didn’t know if he was alive or dead. No, he doesn’t seem healthy. Never mind – what’s happened here?’

‘They just showed up on the horizon while you were at the River.’

‘Who are *they*?’

‘Well, we’ve no idea. Nobody has gone out to meet them yet. There are hundreds, Mela, it looks like. And they’re not Sirians, not imperials – not if they’re coming *around* the Wall, rather than from within, from the Empire.’

‘Immies?’

‘They must be. Mela, we can’t let them stay. Not in any number. We barely support ourselves, our few hundred, with the smartcrop we can gather.’

‘I know, I know. And yet – where are they to go? South?’ But by now, as she knew, there was only some fifty kilometres of ‘south’ from here, before the Perimeter, as she had reminded the Imperial official. *They are Immies, as we were. Or are.* ‘I’ll go meet them.’

‘Thought you would. Then I’ll come too.’ She held up her medic’s bag, a bright blue artefact she had carried all the way from Procyon. ‘Amazing how an invading mob can suddenly become a queue of patients, if they’ve been walking for days, or tens of days.’ She hesitated. ‘Or I could go see to your father.’

Mela’s heart tore a little more. *Yes, Selta, he needs you.* ‘Vitae’s with him. Stay with me. Are you up to running? Best if we can be the first to speak to them, before they reach our people. Come on ...’

Selta grunted, as they started to jog towards the newcomer horde.

As they approached, Mela made out a little more detail. She could see a line of adults in the lead – headed, she saw, by a sturdy woman in what looked like a Procyon Town Guard’s uniform, dusty, much scuffed and repaired. She seemed vaguely familiar.

The others with her, men and women, even older children, held what looked like weapons – mostly bits of wood or stone, masonry fragments scavenged from vanished towns or abandoned Sirian Guard camps, perhaps. But these were held loosely, the people’s arms by their sides. Not threatening, then. Not yet.

Behind this vanguard came a slower mob, more crowded together. Men, women, children – Mela could see infants in arms, and she felt a faint surprise, as she occasionally did, when she saw people were having children so close to the end times. But people were people, and were driven by impulses older than the world.

And following behind them all were carts and travois, some bearing more children or old folk, heaps of gear in knotted blankets, a few food packs, all the vehicles hauled by the dusty, weary people themselves.

‘They look intent on defending themselves, at least,’ Selta murmured, breathless.

‘But it’s not an army. Not even a mob. You can see that. Just a bunch of Immies, displaced, on the march. As we have been more than once.’

‘But even so,’ Selta said heavily, ‘even if they’re entirely peaceful – *we’ve got no room for them.*’

Which, Mela thought, was pretty much exactly the message she and her own community had got from the Sirians since the day they had arrived here, washed up against the Wall of Empire. And *she* hadn’t gone away. What right had she to exclude these others?

She slowed to a halt. As did Selta, after stumbling a short way further.

And so did the newcomers, the vanguard just paces away.

Mela saw that the woman she had pegged as the leader of this group – the woman in the Procyon Guard uniform – had dropped her weapon, a kind of wooden club. She began to walk forward now, alone, empty palms held up.

Mela tried to hold eye contact. She studied the woman’s face – a shock of grey hair around weather-beaten skin. She might have been forty years old. She still looked familiar.

So much had changed since the abandonment of Procyon – she had seen so much, met so many people. But in the end it was the Guard uniform that gave it away.

‘You are – Tiso,’ she said slowly. ‘From Procyon. Once you were in command of my brother. He was the Magistrate’s son. He was called—’

‘Tabor,’ said the woman, evidently surprised herself to hear the name from the past. ‘Oh, I remember him. If only because of that connection to the Magistrate. And I remember you—’

‘Mela.’

‘Mela, yes, yes. He was under my command on the last day, the abandonment. He was a spectacularly nasty runt. Even then we didn’t need to work that way, the way *he* did. But useful in his way, if you needed that brutish quality. He was good in bed, I admit that. What happened to him?’

‘He went far,’ Mela did dryly. ‘I heard he’s got some kind of position of power in the Sirian Army.’ She gestured at the Wall. ‘Somewhere behind *that*. Or on it.’

The woman laughed. ‘Why aren’t I surprised? Even now, as the whole world is turning to shit, the worst of it still floats to the top of the barrel.’

She walked closer, and studied Mela more closely.

‘Tabor took me into your house that last night in Procyon, I remember. Or the night before. It was a kind of a thrill – the Magistrate’s own residence, and there I was screwing his son.’ She shook her head. ‘Means nothing now. We were all like children. And it’s all gone, gone into the Tide.’

Mela was aware now of the other people around her – the folk from her own community, these newcomers ahead – all watching the two of them, probably straining to hear what they said.

She wasn’t sure what to say. What kind of conversation were you *supposed* to have?

Tiso said, ‘You had a sister, called—’

‘Twin sister. Ish. She – I lost her.’

‘I’m sorry.’

‘Long time ago. I don’t think I’ve heard my brother’s name for years. And then, just today, I met my father. Or found him. And *he* mentioned Tabor. And now here you are ...’

‘How did you find your father?’

‘He came to me. After Procyon, we did meet once in Deneb, where I lived for a while. Evidently he made it to Sirius, with my mother and brother. And now he’s some kind of functionary in the government.’ She indicated the people around her. ‘We call this place, our camp, New Deneb. I’m a kind of de facto Magistrate for the people here. Properly elected, though.’ She forced a smile. ‘We’re a talented family, right? Even if I only have the job because there’s nobody else even marginally more competent to do it. And anything I do know I learned from watching my father work, when I was only a kid.’

Tiso nodded. ‘We do what we can, that’s all. I rose to Fence Watch captain, no more, before Procyon was lost. Now, what am *I*? A would-be nurse, maybe.’ She laughed at that. ‘In charge of all these people. As you are. We do what we must, what we can, as well as we can. But, look. You say it’s strange that you should hear about your father and brother, and *me*, all in one day. I don’t think that’s so strange.’

‘You don’t?’

‘Not at all. Look around. *The world is shrinking*, day by day. I mean, it always has been. But when we were kids, even, the process was fairly slow: every few years some town would disappear down a deepshaft, then, a few years later, another. Now it’s all accelerating. Isn’t it? Year on year, month on month, now. So, especially as we wash up against this monster of a Wall, those of us who survive are crammed together. Like garbage that collects in a drain.’

‘Nice comparison.’

‘Well, I’ve never had any pretensions to grandeur. I’m a soldier, that’s all. A soldier by training, a survivor by instinct and cunning. As you are a survivor, or you wouldn’t be standing here.’ She looked around then, at her own people, at the townsfolk of New Deneb standing nervously behind Mela and Selta. ‘And in a way, that’s why we’re here.’ She gestured beyond Mela. ‘Your River.’

‘*The River*. That once ran all the way down through Deneb and Procyon and beyond.’

‘I know. I’m from Procyon too, remember? But I also know that this is – not a unique place – rare, in this world, but not unique. There’s more than one river coming down from the Heartland Mountains. They all reach the

Wall, but in four different places – roughly, north, south, east, west. And in each place it's like this.'

'So I've heard,' Mela said.

Tiso gestured. 'The Wall surrounds the inner provinces, and the Heartland itself. And it is breached nowhere save where the great rivers flow. And there you find these huge, squat towers, at the bridging points. Like that structure behind you. Only three other places like it in the world.

'And *that* is why we are here, now. You'll know I didn't follow your crowd up South River. Some of the Guards went rogue. We split from the official parties, went deeper into the country, just to see what we could find. Away from the River it was arid, but there were streams and lesser rivers, tributaries of the big South River itself, most of them. And lots of small settlements to raid.'

'Immies themselves?'

She shrugged. 'There's no shame in surviving. It wasn't a good life, exactly, but we were *free*.

'But the Tide will catch us all in the end, so they say. We were all driven north, eventually, until we approached the Wall, and – well, here we are.

'Because *your* bridging point was the nearest for us, in three hundred kilometres. Anybody who lives anywhere even roughly downstream of this place will be coming here now – if they haven't arrived already.'

Mela followed this logic to some extent, but she sensed she still didn't completely understand. 'What is it you want, then? Access to water? Somewhere to make camp?'

Before she could reply, Selta stepped forward, and spoke for the first time. She held up her bag. 'I'm a doctor. You can see that. Maybe I'm more practical than most. And I have to tell you, Tiso, that *there's no room for you here*. There isn't really enough room for *us*. Or enough food. Even after we stopped paying the tributes the Empire demanded, we were getting cases of malnutrition. And the world—'

'Isn't getting any bigger.' Tiso forced a smile. 'I remember when my own mother used to say things like that, when I asked for a second portion of food. I was always *hungry*. But, look, we haven't come here for the pleasure of starving in company. Or robbing the likes of you. If you're just as badly off as we are, then what's the point?'

Mela frowned. ‘So you’re done with raiding camps. Then why *are* you here?’

‘Something different altogether. Mela, I’m glad I found you, with your contacts in the city, in Sirius. Your father. Maybe he can find a way for a party of us to get into the Empire and – make a deal. Because that’s what we need to do. Why we came here. *To make a deal with the Empress.*’

Selta was wide-eyed.

Mela, too, was startled. ‘It’s a day of shocks, it seems. And why would the Empress make a deal with you?’

Tiso grinned, and now Mela saw the cocky, competent Town Guard she had encountered all those years ago. ‘Because it’s possible for a bunch of ragged Immies like *us* to hurt the glorious Empire of Sirius itself.’

And Tiso explained her plan.

The negotiation didn't happen the next day. Or the next.

They had to wait all of four days for the next Sirian gondola to come down the River, with a fresh couple of officials – a different pair of surly Palace Guards, it looked like to Mela, so not Tibor – to make fresh demands for the township's tribute. Mela was aware that troops had been sent out in advance of this appointment, evidently surveying the encampments, the food stocks, such as they were. And they seemed to have done a head count of the newcomers, Tiso's people. A weapons count too, maybe. A threat assessment. *She* would.

But this time was different. This time Mela took Selta, Tiso and Tenn, Mela's father, down to the dock, to meet the imperial gondola. This time they had authority on their side – or so Mela felt.

Tenn was frail, exhausted as usual. But he wore his imperial uniform with pride, as he faced his replacements on the gondola – and, before they could get much past introductions, he made his demands on behalf of his daughter and Tiso, and their ragged peoples, in the formal language of Empire.

Demands that Mela and Tiso be taken into the city, aboard this very gondola, to negotiate formally with a senior official – ideally the Minister for Immigrant and Hinterland Affairs herself, he insisted. 'And,' he said to his replacements in the gondola, pointing a bony finger, 'don't you dare tell me you don't have the authority to pass on this poisoned fruit. I'm an old hand at that game ...'

The officials seemed nonplussed – but agreed to take Tenn's party with them.

'Ha!' Tenn said, gathering up his robe and preparing to step into the gondola. 'This way, Mela, this way, Tiso, Selta ... I knew it would work.'



You just have to make them uncertain. Jokers like this will always kick anything novel upstairs – anything that might imperil their own personal position. Because you can always be cast out beyond the Wall yourself, you know ...’

The boat crew, all women this time, kept the gondola steady as the passengers climbed aboard, then poled briskly, pushing the craft upstream. The ride was smooth.

Mela tried to imagine what Khem and Farrell would have made of the luxury of this river craft, painted a heavy imperial purple, with cushions so deep she could barely feel the frame of the gondola beneath her.

Soon they passed into the deep shadow of the bridge under the Wall. Mela tried not to think about the enormous weight of the masonry above her head, held up there only by the grace of some long-dead engineer’s calculations.

Soon enough they emerged into the light.

And she saw the Empire of Sirius for the first time.

Time seemed to stop, so intricate, so crowded was the view.

When she glanced sideways, Selta, and even the tough, cynical Tiso, were staring, open-mouthed. Staring at mountains looming on the horizon – looming over a landscape still hundreds of kilometres deep, Mela realised, their peaks floating like clouds.

The Heartlands had been visible from afar, across hundreds of kilometres, during their long walk north. The world was flat; you could see the mountains as far away as the murk in the atmosphere allowed you to. But when they had come huddling up against the Wall that great barrier had blocked out this view.

Now they were revealed once more. And somewhere up there was mighty Sirius itself, the world’s greatest city, and capital of the world empire. Briefly Mela strained to see, looking for a glance of light off metal or glass.

But for now it was not the River or the Dam or even the distant Mountains that caught Mela’s bewildered attention.

It was the living blanket that washed across much of the landscape ahead, a vivid green and white and yellow, the colours of a variety of smartcrops. And tucked into that broad panorama she saw splashes of grey

and brown that must be settlements, villages, towns, even cities themselves. She hadn't yet got a sense of perspective, but she could see that the land rose steadily towards the Heartland peaks, and that this pattern of settlement continued deep into the landscape as far as the eye could see.

Tenn, moving awkwardly in the gondola, grabbed her hands. 'Come now,' he whispered. 'Don't be overwhelmed – that's what they would want. Why, this view was probably *designed* to evoke that very reaction. To batter down the provincials and the barbarians and other underclasses. It's not magic, it's just big.

'And you've surely seen some of it before.' He pointed ahead. 'The Heartland Mountains themselves. And this is the River, just the same old River that ran down through Procyon. Remember? But now, look, you can follow its course, back towards its ultimate source in the Heartland. See how that big tributary joins it, not far upstream? ... Ah, look. And see there, the pale white line at the foot of the mountain range? *That* is the Dam, which has controlled and directed the water of the River for the benefit of the Empire and its people and their prosperity for – well, for centuries, since the Empire tightened its grip on the whole world. And all of mankind.'

Tiso murmured, looking at the greenery, 'That is an awful lot of smartcrop.'

'And an awful lot of people to consume it,' Mela said. 'And still not enough, apparently.'

'No. Not if they are taking what's ours too.'

'Well, that's what we're here to discuss,' said Tenn.

The gondola approached a low dock, where another couple of crew waited with ropes to tie up the craft.

Tenn was the first to stand, cautiously. 'Come now. The gondola is tied up, but it may rock as you disembark ... Let the crew help you ...'

Once off the gondola, Mela looked back, and got her first glimpse of the Wall from the inside.

While the exterior, needing to be defended, was a blank surface broken only by window slits, this interior side was like an intricate carving, Mela thought at first, with walkways and shafts built into the fabric, and with large structures clinging to the inner surface, like fungi to a rock. It was a striking sight to stand here and look up at it – and even more startling to

look to left and right, and see the same pattern stretching off as far as her eye could follow.

‘Yes,’ her father murmured in her ear.

‘Yes, what?’

‘Yes, it’s all like this. Three thousand kilometres of it, all around the Heartland. Don’t be dazzled. Come now.’

They started to walk, slowly, away from the landing platform.

Tenn said as they went on, ‘Once I was given a tour – of the Wall, I mean. Not for pleasure; I was supposed to understand roughly how it works, how it is provisioned, and so on. Inside it’s like a warren, a warren of stone, where people live for years at a time, with barracks and kitchens and infirmaries and training areas and store rooms. The Wall is itself a nation, of sorts. Or a great human machine. All of it connected by walkways and ladders and stairs.

‘I know for a fact that your brother, Tabor, has served here. After his experience as a Guard at Procyon, and particularly on the Fence Watch. I think he had a youthful dream of serving in this place one day. Some Fence this is! Some Watch ...!’

‘And some romance you spin.’ A woman’s voice, oddly familiar. ‘But this will probably be all you’ll see of the Wall today.’

Mela whirled. For a moment she thought the woman approaching, flanked by Guards, might be her own mother. Something about the intonation, the phrasing – the contempt.

It wasn’t her mother. It was Bel Petro.

She wore a kind of trouser suit, crisp, clearly expensive. Her hair, cut in that unique way Mela remembered, half of it shaven from her scalp. Yes, Bel Petro the land speculator, who – it had seemed to Mela – had lured her mother into so many risky transactions.

*But Bel had known her mother. Had even loved her, perhaps.*

She couldn’t help it. She blurted, ‘Do you see her? My mother? Is she here?’

‘If I did see her,’ Bel Petro said coldly, ‘she would have no place in this transaction.’

Mela glanced at her father, who shrugged and turned away.

Selta stepped forward, strong, frowning. Quite unintimidated, Mela saw with admiration, though she was just as much of an outsider as Mela was.

Selta said now, 'So you mention a transaction. Glad you've paid that much attention at least.' She looked around, with a kind of aggressive confidence. 'Shall we talk?'

This was a tactic they had discussed in advance. The imperials would expect Mela or her father to take the lead. Perhaps a blunt, self-confident young doctor would throw them off balance.

But Mela wasn't surprised when Bel returned her glare, without giving ground. 'You misunderstand the situation,' she said coldly. 'And my role. I am here to assess *whether* you should be given the time to make your case at all.'

Selta wasn't put off by that. 'Then I'd better get to the point. I would think that even you must have observed that our world is shrinking. And with it comes a certain shift in the demographics.'

Bel frowned. "'The world is shrinking.'" Are you a child—?'

Now Mela stepped up. 'This is Year Six. Are *you* aware of what that means? Do you look, even in imagination, beyond this great, useless Wall of yours? Do you see? Do you *see*? Here is your Empire and its Provinces, inside its Wall, yes, still intact. You still have four-fifths of what is left of the world's land. But outside, the ledge where *our* people live is now only fifty kilometres deep, and diminishing rapidly.

'And yet you demand food of us. *And yet you tax us*. Can you see? Can you see the imbalance?'

Bel seemed to be thinking it over. She pursed her lips. 'Actually you make a case. Not a good one, but coherent at least. Yes, it does seem futile seeking further tribute from you. Perhaps we should simply seal the Wall against you. Entirely, all around the world. At least then we would not have to put up with your racket. Do you know that the clamour of your children, crying in the night, actually affects property prices in communities just within the Wall? Not the moral anguish, you see, just the noise nuisance —'

Mela took a step forward at that. Selta grabbed her arm, pulled her back. Mela felt she was ready to kill this woman.

'Well, that's one possibility,' Tiso said calmly to Bel. 'That we sit around with our weeping children and wait for the Perimeter to wash over us. There are other choices.'

'Such as?'

‘You open the gates. *You let us in.* All us “uncivilised”, all around the world – we have a lot of contacts now. And it would cost you so little. Given our tiny numbers compared to the hordes that must swarm here, within the Wall, in Sirius itself.’

‘And *why* should we do that? What would we gain?’

‘Fair questions. Let me tell you about the distribution of people outside this Wall,’ Tiso said. ‘I should know. I’ve spent a lot of time since Procyon travelling, working it out – listening to other travellers’ accounts.’

‘The strategic distribution.’

‘People aren’t uniformly spread around the world, what’s left of it, around the rim. Of course not. *We all need water.* And so, as the world has shrivelled, we Immigrants have tended to congregate in the valleys of the four great rivers, or near them. And we have followed the courses of these rivers as they shrank back ...

‘So what you have now is a very uneven distribution of people. Lots and lots of people clustering around the heads of the rivers – or rather, the places where the Wall is breached to allow the river water to flow through – just as right here.’

‘Ah. You frown. Do you anticipate my logic, Bel Petro?’ She waved her hand at the Wall behind her. ‘You think of this feature as a bridge, perhaps. In fact a more accurate term would be a *culvert*. A channel built to allow excess water to flow away, under this Wall ... Think about that.’

‘And you have lots of needy and resentful people, sitting right here. Right by your culvert. Think about *that*.’

‘Think. *Just suppose they took a mind to block your outflow channels.* The land is pretty flat this side of the Wall, it seems to me. You’d quickly get a flood backing up deep into your paradise, here. How many people would be displaced, and how quickly? And this area is obviously a key food source. How much smartcrop would be lost? *How many would die?* Also, that sodden ground would start undermining the Wall itself, precisely at its weakest points. Do you still have any surveyors working in this paradise of yours?’

Bel was keeping her cool, Mela saw. ‘We need no surveyors. We have troops. Weapons. We will scatter you—’

‘We have a lot of determination, and a good length of Wall to retreat around. And nothing to lose. *We would come back.*’

Mela had the instinct that this was the moment for her to make a counter-offer. ‘You should listen, Bel. Whatever you are now, you *were* in business. This is a decent proposition – a little food, comparatively, to avert a crisis that could destabilise the whole Empire. In fact—’

‘Enough.’ Bel glared at them all. ‘How I despise you people. I always have. Yes, your mother too, Magistrate Mela. Even as I used her to rob her own people. Even as I explored her clumsy body. Yet you have a certain rat-like cunning. I will speak to those in authority about this ...’ She turned away, then looked back to Mela. ‘By the way. Do you wish me to tell your mother you are still alive? Or would you rather she believe you dead?’

And with that she turned away, every step, every gesture, radiating contempt.

They clustered together now, Mela with her father, her faithful friend Selta, and this unpredictable new ally, Tiso.

Now Tiso let out a deep breath, as if deflating. ‘I waited my whole life to say that. Or something like it.’

‘But we won,’ Tenn said gently.

‘Oh, yes. We won. Whatever winning means, in this scrap of a world we have left. Come on. Let’s get out of this ... park. And tell our people that they will soon be moving again: into the Provinces.’

She turned and led the way back to the water, where their gondola waited, in the shadow of the Wall.

And Mela began the job of processing this confirmation that her mother was still alive.

Once formal permission was given, it took only a few days for the Immigrant groups led by Mela and Tiso to combine forces, pack up, and move through the Wall and into the land the imperials called the Provinces. Rather than have them swim or ride through the culvert, reluctant Wall Guards opened up long-sealed doorways and allowed most of them simply to walk through.

Then it took a few weeks to set up a new combined community, deep within the Provinces, indeed close enough to see the complex face of the imperial Dam, just to the north. It would have a regular food supply, gathered from smartcrop fields around, and was relatively lightly taxed.

And it had several deepshafts, where lines soon formed up, once again. Despite this victory, the end of all things was just as close as it had been.

They called their settlement New Procyon. That was Vitae's idea. 'Every community accretes its own history ... Why not us?'

Life settled down after a few weeks. Mela got back to work, consumed by the everyday running of the community – with much liaison now with Tiso, and frequent visits from Mela's father – and a messy, tentative dialogue with the imperial authorities.

And four more years wore by.

John Hackett

AD c. one trillion years



Hackett was used to waking from deep, induced sleep by now. As used as he would ever be. It was more like surfacing from an anaesthetic than waking, a process of reassembling the inside of his head, then a gradual sense of his own body, and only then the world around him.

This time he woke twice.

The first time, a man's face hovered over his. He was bald, oddly tanned – as if by the light of a different sun, he thought.

‘Do you know your name? Do you know who you are?’

‘I'm John Hackett. Who the hell are *you*? And what are you doing on my ship?’

The guy smiled. ‘Well, you were adrift, my friend, you had some kind of unlucky break out there between the stars. And *lucky* for you my job is to search for technological artefacts lost between the stars, although I'd have sooner found an alien treasure ship ... Couldn't leave you drifting.’

‘My *Perseus* ... never drifts.’

‘Tell that to your insurers. Look, I'm going to patch you up and send you back home. OK? My name is Captain Ralom Ssagla, of the *Cognate*. I'll leave a record of all this, and ... Hackett? Hackett? ...’

A glare of light above him.

A second waking, then. He could be anywhere. Any *when*.

Somewhere a machine beeped, steadily. He mumbled a protest. Millions of years in the future and they still had medical machines that beeped.

A face above him, round, a Moon face, blurry craters where the eyes should be. ‘What was that? John Hackett—’

‘I *said*—’ His mouth was a sand pit. ‘I said, the bleeping machines ... Forget it.’

He had no real sense of his body, just a kind of general numbness. Nevertheless he tried to sit up. He actually made it, part way.

His vision, slowly clearing, revealed a sleep chamber not dissimilar to the one he remembered being inserted into, back in the long-lost year of five billion AD. Itself now five billion years gone, if the mission had followed its plan.

There were two other beds in the room, which wouldn't have looked out of place in a hospital room in the twenty-second century. *If it ain't broke ...* Both of the other beds were occupied.

He tried to think.

He turned his head to the person standing over him. A woman. Slender, grave, her skin tone like copper.

'Where are we?'

'In deep space. In what you would call the Oort cloud. Where the comets used to be.'

The edge of the Solar System, then. 'How's my ship?'

She smiled. 'The *Perseus*? You would ask about that first. Before your friends, before your own condition. Well, she struck a reef, you might say. She's fine now. In dry dock, I think you would call it. A maintenance facility attached to this habitat. Receiving lots of loving attention. She is a famous antique as well as an exploration ship. Lots of invaluable data in the memory banks ... She was adrift for a long time, but the Galaxy is a quiet place these days, and her maintenance mechanisms kept her safe.'

*Attached to this habitat.* In space then.

'My friends, since you mention it ...'

Rava Pogee. Nearly as antique as he was now, and yet for him she would always be a weird super-being from an unimaginable future. And Icsoba ... No, no, she had stayed behind. Sabin Roos! The administrator who had done enough administrating.

'Rava and Sabin?'

'They're fine. They woke up before you did.'

'I'm that bit older. Longer to recover.'

'That bit older. You could say that. And your body has been through this process many times before. This *kind* of process. I guess the first was back in the Stone Age, a thump on the head with a mammoth thigh bone, right?'

‘Something like that—’ Another memory fragment clicked back into its socket. ‘I remember you. Taiva Lopic. You were assigned to accompany us.’ And they had been lovers. He glanced up at her. ‘We got here through another relativistic journey. You took the long way round?’

‘Or you did. Depends on how you look at it, doesn’t it? The Substrate is timeless, in a sense. I ... suppose I would have been surprised to have known, back then, that I would still be here to meet you when the *Perseus* came home again. However long it took you.’

That sounded to Hackett like a hint that the mission duration hadn’t been five billion years after all. How long, then?

Somebody murmured. One of the others, stirring.

And Hackett felt suddenly drained. ‘Hey. Let’s park the conversation on Substrate tech and its theoretical limits. I’ll be fine for a while. Maybe take a nap. Go see to the others.’

‘The machines—’

‘Don’t have reassuring faces. And even two hardened warriors like Rava and Sabin are going to appreciate your kindness.’

That seemed to take her aback. ‘Kind? Me? I’ve never been called that before.’ She frowned. ‘Well, not that I remember, anyhow.’

‘What, not once in five billion years?’

‘About that—’

‘It will keep. Go ahead, I’ll be fine here for a while ...’

And he rested back, tried to relax stiff, sore muscles that protested every time he moved, and let sleep wash over him again.

In one waking, he remembered his encounter in the dark. Captain Ralom Ssagla, of the *Cognate*.

And he woke again.

Was that just a dream?

No, he found, when he was able to explore his personal log, and the ship’s own records – all of which were severely censored.

The *Perseus* really had fallen foul of some reef between the galaxies – or rather a pebble. A bit of debris expelled from some planetary system a billion years before, probably. A highly unlikely encounter but there you go; if you travelled enough you were asking for such accidents.

It had been so sudden the ship could do no more than dump its crew into deep, energy-efficient Substrate sleep, effect what stabilising repairs it could, and then set up an energy-economical beacon and wait for rescue.

They were fortunate that the accident came when the ship wasn't too far off the Solar System, returning. Even so it had taken a long time for their drifting presence to be noticed.

Which had come in the form of this Captain Ralom Ssagla, it seemed. Eventually.

'I need to shake the guy's hand,' Hackett murmured.

Taiva ignored such requests, for now.

Hackett couldn't be sure how many days it was before he, Rava and Sabin were finally able to gather together, with Taiva, in a kind of viewing lounge, sit back in pretty luxurious couches, and – so Taiva promised – look out at the scenery.

In fact it wasn't until he walked into the lounge, and looked out of windows at a star-littered sky – or looked at screens, it was hard to tell which was which – that Hackett knew for sure he was still in space, still in some habitat. The gravity felt about Earth-normal, but that could be induced by rotation. There were no obviously curved floors, so if this was some kind of big rotating tank it was a huge one – or else it was all more subtle engineering than that, even some kind of gravity control maybe, in this no doubt impossibly advanced age.

The stars, meanwhile, looked ... faint.

Taiva fussed around a little, making sure their couches were set right, that they had access to drinks – that a hovering spheroid that Hackett had learned to recognise as an automated care worker was fully functional.

The place felt crowded. The travellers had seen each other before this, two at a time, always with Taiva present. This was the first time the three had been together since waking.

And in fact Hackett, for one, had seen no crew on this habitat save for Taiva.

Which was the first thing the ever acerbic Rava remarked on. 'What do the crew think we are, plague carriers? Monsters of the racial subconscious? Savage warriors here to pollute their precious genetic lineage?'

As she worked, Taiva said, ‘None of the above. It’s just that this is a big habitat, with a large Substrate lode; people come and go all the time – I mean, the embodied do. They hang around for a century or two, then disappear back into memory.’

‘Always that damn Substrate,’ Hackett said.

‘Don’t knock it,’ Sabin Roos said. ‘Have you looked over your ship properly yet? We were out there a long time, my friend. Long enough for the hull to start sublimating – the Substrate systems from *my* era were smart enough to adapt their own matter-printer tech to rectify that.’

Taiva shrugged. ‘The Substrate has long been all-pervasive. I suppose. In every aspect of our existence. Long since. Thanks to that, there is much more ... continuity now.’

Rava shook her head. ‘You mean, there is much *less* change. Less innovation. I always thought that, and I can still see it now we’ve travelled another five billion years on ... *Five billion years*. We throw around these numbers. That was the planet’s whole lifespan when John here and I were born ... Earth is *twice* as old as it was when we were born.’

Taiva said nothing to that.

Hackett felt they were all missing something.

The stars out there.

‘Something’s wrong. Rava, Sabin, come see.’

They all stood, walked over cautiously to the largest of the viewscreens. Rava used a simple walking stick, Hackett saw. As possibly the Neanderthals once had. *If it ain’t broke, don’t fix it.*

Taiva watched them quietly, made no effort to interfere.

He said, ‘Tell me what you see ...’

They talked it over in quiet tones.

The distant stars seemed *dimmer* to Hackett, dimmer than the sky he had grown up under on Earth, so many aeons ago. As if *all* the visible stars had aged significantly, along with the Sun.

‘So where the hell are we? I was told we were found out in the Oort cloud, so near the Sun. Of course there are no recognisable constellations,’ he said slowly. ‘Probably no star I would know is still visible – save the Sun. When we left the whole sky was filled by a star creation event, as the galaxies collided, Andromeda, the Milky Way. So many of the stars we see must be *new*. Relatively. And the stars I did know must all have changed,

evolved or scattered ... The geography of the whole new combined galaxy must be different. No more neat spiral arms, I guess.' He peered more closely. 'But the more distant objects still, the other galaxies, the clusters of galaxies, the superclusters, all *that* must still be visible out there. That would provide some kind of orientation. They can't have changed that much. Orientation in space and in time.'

He began to experiment, speaking to a window he just assumed was smart, telling it to blank out the nearby stars, the stars of this new Milkomeda, the combined galaxy, and to show him the pale scatter of galaxies and galaxy clusters beyond.

But only darkness was revealed.

He checked the settings a couple of times.

Rava came to help him.

They could find no sign of distant galaxies, beyond this fading relic of the smash-up between the home galaxy and Andromeda. No sign of the cosmic architecture beyond.

And Hackett saw it suddenly, and he grunted, folded. It was as if he had taken one step too many and fell off a cliff. 'Ah ... I get it. The dark energy scattering.'

Taiva frowned. 'The what now?'

He straightened up. 'I imagine I wouldn't have spotted it so quickly if my own ship wasn't driven by dark energy. I've always known more about it than I needed to. Until now.'

'Look, the universe is full of dark energy – a bulk phenomenon, part of the architecture of the cosmos itself, that is causing an endless expansion, like an all-pervading antigravity field – pushing the substance of space apart, and everything in it. Even in my time we knew that *everything* would be scattered in the end. Even galactic superclusters – everything above the scale of a galaxy. After that there would be nothing to be seen in our sky, beyond the Galaxy-Andromeda mash-up ...'

And now there *were* no distant galaxies – none visible, anyhow.

'How far beyond that have we come?' Hackett snapped. 'In time, I mean? I know that the dark energy scattering was due to happen around a hundred billion years into the future – I mean *my* future, after I was born. After that, empty skies, beyond the local galaxy. Darkness. *How far, Taiva?*'

She faced him, stubborn, but hesitant. ‘This is a common feature of revivals like yours,’ she said. ‘From the very deep past. Especially if you have been lost, or overlooked, until far past your mission’s nominal waking time. After your disabling accident, you were lost, you drifted for a *long* time. And then you were brought back, and set down in storage. And all the time humanity was engaged in the most absorbing projects in its history. Now, we think it’s time to wake you. It’s best to try to cushion the shock. To let you figure some or all of it out for yourselves.’

And Hackett stared out at the stars, scattered, sparse, so dimmed compared to the star fields he had known in his own time. All the stars, aged.

Then Sabin said, ‘Show us the Earth.’

‘Very well.’ She gestured at the big viewing window.

And there was Earth.

Well, Hackett presumed it was Earth. With the others, he pressed closer to the window to see.

A planet, certainly. A bright face, turned to the pale white light of some star – the aged Sun? – was cupped by a dark crescent slice of night. On the lit face, Hackett saw only a wrinkled, rocky carapace – of course no more; he had seen Earth’s surface molten, so long ago.

‘People survived,’ Taiva said. ‘Even on Earth. They saved the planet from the red-giant swelling of the Sun. They clung on in deep subsurface shelters, as enclosed in terms of resource loops, air and water, as in any deep space habitat. They called themselves the Custodians: heroic generations. They couldn’t save the biosphere, not intact. But they saved the Earth.’

Hackett frowned. ‘How?’

Taiva smiled. ‘They moved the planet. Away from the swollen Sun. It was a technology you would understand, John Hackett.’

She brought up a schematic on the big screen-window, a limb of the baked Earth with a string of some kind of spacecraft passing it, gaudy – like a chain of flowers, Hackett thought, silver flowers.

Rava Pogee got up, approached the window, and stared. ‘These look like sail craft. Solar sails?’

‘Correct,’ Taiva said. ‘At its monstrous peak the red giant Sun was pouring out torrents of energy in the form of radiation, so we exploited it. Solar sails ... You understand the principle? Light is a stream of particles, of energy packets, which bounce off any reflecting surface, and so push at it. As water hosed at a sheet pushes that sheet back. It’s a small force, and you need a lot of sail—’

‘This was well known in my time,’ Hackett said. ‘It’s actually a subsidiary technology on the *Perseus*. But still, even with the sunlight two thousand times as intense as it used to be – the Sun’s peak red giant output: did that prediction work out? – it’s not much when applied to the mass of the whole Earth.’

‘True. But the energy was free, and plentiful. We could manufacture as many sails as we liked. We didn’t anchor them to the Earth, by the way. The sails dragged asteroids – or chunks of Mercury, mined before it was swallowed by the red giant – and it was those rocks’ gravitational pull that, touch by touch, pulled the Earth out of its perilous position. We had plenty of *time*.’

Rava snorted. ‘Touch by touch. Like wearing away a mountain by stroking it with a feather.’

Hackett said, probing, ‘What a project it must have been. You must have called in every resource across the System and beyond – whoever you had out there, the spacers in their habitats. To get them to come in, to save the mother world. Yes? So why aren’t you down there right now, celebrating? Why aren’t we? We are spacefarers too ...’

And, from Taiva’s expression, he saw he had hit a nerve.

Sabin knew Taiva better than any of the rest, and she leapt on that. ‘What haven’t you told us, Taiva? Can we not be taken down to Earth? Why not?’

Taiva looked out wistfully at the Earth. ‘Because there is a new ... sensibility. About humanity’s place in the cosmos.’

‘There have been discussions. We concluded it was best you learn the conclusions all at once.’

‘Learn what?’

‘Look – remember the grand schemes we had, back in the day? When we faced the Andromeda-Milky Way collision? We thought then that we were the only intelligence, of any kind, in the cosmos. We had discovered no life



or minds like our own – and we thought that the stars were inert, just part of the furniture.

‘And we were going to rebuild the universe! Why not? Maybe we could make it more hospitable for life like our own.’

‘So we tried to manipulate the galaxy collision to produce small, long-lived stars – to make the stuff of the universe of optimal use for *us*, and our descendants. Again, why not? What use was it otherwise?’

‘Ah,’ Hackett said, remembering, understanding. ‘That was the dream. And then we discovered the stars are alive, and it all went away.’

‘Yes. Suddenly we weren’t the most important feature of the universe after all. *We* are just a side-effect. Everything else is what matters, the swarming, living stars ...’

‘So you must remember that the nascent stars used their flares to attack our installations. Stopped our meddling, drove us back to our own Sun. Our own world, circling the cooling white dwarf star that our ageing Sun has become. We think *that* is all they will tolerate of us. Perhaps *Earth itself is our only birthright*.

‘So there were movements to formalise that understanding, philosophical, scientific, political, even religious. To pull back to Earth, to set down there calmly and live our lives. Every human we could reach did just that. Some came back from distant stars ...’

‘And meanwhile,’ Hackett said, ‘you imprisoned *us* in the Substrate. Correct?’

‘No. You were already stranded in the Substrate aboard your *Perseus* – until you were found, by sheer luck, quite recently – and I, on a waking of my own, as the Final Abandonment approaches, discovered your lost record ... I thought of you for the first time in aeons. And I realised that we need your help. Especially yours, John.’

‘How long? How long did we drift? *How long have we been asleep in the Substrate, that damn coffin?*’

‘You have travelled far,’ Taiva said.

‘More than our target five billion years. Beyond the dark energy scattering—’

‘*A trillion years*, John Hackett.’

A thousand billion.

There was a stunned silence.

Then Sabin said, 'Take us to Earth.'

Earth, in this age, looked from orbit like a quarry drifting in space, Hackett thought.

In their habitat, hosted by a distant Taiva Lopic, they orbited this lonely rock closely for some days. Visitors from space were rare, it seemed; it took some time for the necessary machinery, bureaucratic and otherwise, to be put in place before they could descend to the surface – and, it was hinted, go deeper than that.

But as they waited for days for permission to land on their home planet, Hackett found himself patient. That was what ten to power twelve years of hop, skip and jump time travel did for you, he supposed.

And in the long hours of waiting Hackett felt himself drawn to Earth. To the views in the screens, the clear windows.

Biology here was over. That was clear. There was no sign of animation on the planet save the sparkings of artificial light, evoking shifting reflections on smooth planes. The surface was marked by straight lines, rigid boxes, perfect circles: the ancient marks of industry, not biology.

And precious little geology had survived either. He looked for the remnants of ocean basins, the remains of continents. There was little to be made out save a basic dichotomy, one hemisphere at a higher average altitude than the other. On one side of the world, it seemed, lay the wreck of the last Pangaea, the last supercontinent, and on the other the dry bed of the last ocean, either a quasi-Pacific or quasi-Atlantic depending on how the continents had drifted and clustered before their final coalescing. He identified no familiar features, no coasts, no mountain ranges – but then he had seen the melting of the surface as the Sun had approached its red giant peak.

And now, nothing moving – nothing save humans and their symbiotes and parasites and machines, and whatever they had been able to save of Earth's biota before the final extinction, most of this buried deep inside the world, it seemed. Nothing else happening down there now, he supposed, save for the cracking of rocks under the minute temperature shifts from day to night to day to night. Even that process must have been driven to its limits after all this time, after a *trillion* years – with the universe itself hundreds of times older than when he had been born. No rocks left to shatter.

In Hackett's day humans had threatened life on Earth; now they had saved the last of it.

The sky too was sparse.

Even the Sun itself was star-like now in the sky above Earth, rather than sun-like. It had become a white dwarf, eking out the last residual heat bequeathed by its glory days of fusion burning. Hackett found it hard to believe that that shrunken relic had once been a red giant that had almost reached all the way out to the orbit of Earth itself.

And he was startled to learn that the shrivelled Sun was the *only* star visible to the naked human eye. That was despite the great late burst of star-making caused by the collision of the galaxies, of the human Galaxy and Andromeda. Hackett remembered predictions that the combined super-galaxy would have begun to dim even five billion years after Andromeda arrived, as the brightest, fast-burning stars started to fade. Fifty billion years further on the stuff of which stars were made itself would be running out – all across the cosmos. And now, with the universe ten or twenty times older still, little remained of its former glory, of the age of light.

But he was surprised to learn that the Sun retained all its planets – all save Mercury, destroyed in the red giant phase. Venus would have been lost too if not for the intervention of mankind, a heroic relocation in itself, even if it had only been a rehearsal for the shifting of Earth. Someday, still long in the future, random perturbations would dislodge the surviving planets from their star – the orbits of the planets had only ever been quasi-stable – and passing stars too could dislodge worlds, though such events had always been rare. But for now, the planets lingered.

And if the natural environment was sparse and dark and inert now, so was the human world – to the naked eye at least. Aside from the crawling

industries on the surface of the Earth, there was only a dim constellation of space habitats and other craft orbiting the planet – including, now, the relic of the *Perseus*, brought back from its long drift in deep intergalactic space.

Taiva Lopic, once citizen of Mars, seemed to know little of these habitats and ships. Hackett guessed that the deep bifurcation of Earth-dwellers and space-dwellers had only deepened from ancient times.

Indeed if this had gone on for so long it would have been no surprise if there had been some kind of speciation event, Hackett mused, evolution despite the apparent conservatism of intelligence. Sturdy troglodytic Earth-dwellers versus their spidery, big-eyed gravity-free cousins. He studied records and news feeds to investigate.

It hadn't happened – any more than it had happened across the meagre five million years that separated him from Icsoba's ice-cavern people. As with other aspects of the culture of this late age, it seemed clear that the huge blurring of Substrate sleep had imposed a stifling continuity on humanity, a kind of cultural, even evolutionary inertia. The only significant difference to the naked eye was that there were a whole lot more *short* people than before – short and spindly, often. He guessed these were characteristics adaptive to crowded, zero-gravity environments such as cramped space habitats or to caves deep in the Earth. But given that Icsoba and her people had adapted in the same way in their icebound settlements in a mere five million years – *mere*, he thought – such changes were pretty minor.

Which suited Hackett and his fellow travellers, he supposed; at least they might fit in, more or less.

After maybe a month of this – anyhow after thirty old-style Earth-rotation days, which were still counted as a unit of time if months were not – Taiva Lopic gathered the *Perseus* crew together, Hackett, Rava and Sabin, and told them their various appeals to land on Earth had been successful.

'As archaics, emanating from a time before the terrestrial and spacefaring branches of humanity had diverged in law, you deserved the benefit of the doubt. Also you are of scientific interest yourselves.' She shrugged. 'Plus, what harm could you do?'

'Nothing like a warm welcome,' Hackett said.

Taiva studied him, eyed them all. 'You joke. This is a serious issue. Remember, for most of the lifespan of humanity – which by now means

most of the history of this aged universe – it has been clear that the only refuge we humans can count as safe, as *ours*, is Earth itself. Let it be overwhelmed – let it fail – and we could face extinction. That’s what we are planning to avert.’

Rava seemed prepared to scoff. But Sabin Roos, who had held responsibility for species-wide issues herself, seemed to understand. ‘After all our travels, it’s strange to think a journey of only a couple of hundred kilometres, from orbit down to the ground, is so significant.’

Taiva smiled thinly. ‘Oh, you’re going a lot deeper than that, my friend. Didn’t you know? And you have had some assistance with your permissions. Somebody down there has asked to see you, John Hackett.’

Three days later, after, it seemed, various detailed final clearances had been confirmed, Hackett and his companions were loaded into a small, stubby, three-legged landing craft docked by its nose to the habitat.

Within they found chairs with seat belts, a small washroom, a smaller kitchen area where drinks and packet foods were available. Some things never changed.

Taiva accompanied them aboard, a little irritably, Hackett thought. With her own, ancient, personal links to the crew she had clearly been the right person to welcome them to this new age, but she no doubt had her own priorities to pursue, her own projects to get back to. He supposed they ought to be grateful she wasn't still more reluctant – if she had refused this baby-sitting chore, who would have taken her place? Evidently they had no friends here, and evoked little curiosity.

It was hard, awkward, to remember that he had had a sexual relationship with this woman. Neither of them mentioned it; Hackett rarely thought of it. Even love did not endure in this universe, it seemed.

With the group strapped in, the automated lander popped free of its docking port, swivelled, and pulled briskly away from the habitat.

As the lander descended, Hackett looked out of the small ports at desolate, unrecognisable rocky landscapes drifting below.

'Strange experience,' he said. 'For sure this is more like landing on the Moon used to be, when you stood on a flaring rocket all the way down to the surface. Whereas on Earth you would use the atmosphere, batter your way in with a heatshield, and maybe glide down to the surface – or plunge into the sea. Now, no atmosphere, no seas—'

Taiva Lopic said, ‘Look, I got here the long way round. If you people are going to grouse about how it’s all gone downhill since the good old days of the stelliferous era I’m going back into the Substrate.’

‘No, no,’ said Rava. ‘We’ll be good.’

They fell dutifully silent, and followed the view.

They were coming down over the day side of Earth – a day nearly as dark as the night, given the dim glow of the aged Sun. It was a dull ride, the scenery only slowly changing – the featureless black sky, the ground below bare, shadowed save for a few scatterings of lights – yes, it was like the Moon, the inhabited Moon, much more than the human Earth Hackett remembered. It was sad.

He had, he reminded himself, set out on his long journey to the stars – and, it turned out, to the future – because of a loss, the loss of his niece. And now he was dealing with a branch of mankind which had lost everything – its whole future, its dreams of a place in the cosmos – leaving only this, the hulk of the Earth, the patient, enduring mother. He felt his heart break, a little.

At least it was home, he thought.

The final landing was easy, seamless – imperceptible rather than gentle.

Once down Hackett immediately unbuckled and stood up, bouncing on his toes. ‘Earth gravity,’ he said. ‘Nothing like it. Nothing feels so *good*, even if I did have to have that course of injections to withstand it.’ Some kind of nanobot reinforcement of his antique, much-abused muscular-skeletal structures.

Rava Pogee said sourly, ‘People have lived away from the Earth across times many orders of magnitude *longer* than they ever had lived on Earth in your day. But still, maybe some lizard relic in the back of your primordial brain realises it’s come home.’

Hackett grinned. ‘Thanks. So what now?’

‘I told you,’ Taiva said. ‘The descent from orbit is only the start. We’ve a way to go yet. A long way further *down* to go ...’

The module grew dark, and there were a couple of rumbles and bangs outside. Hackett had the impression of massive pieces of machinery moving around the exterior hull. A hiss of air.

Then the door swung open.



Taiva stood, led the way to the door, passed through. Wordless, the others followed.

Hackett found himself in a kind of expanded version of the lander's main cabin – the same hotel-room chic, the bathroom, the drinks dispenser. But here there was more than one room, others visible through open doors. Hackett glimpsed beds.

'You said, *further down to go*. This is an elevator?'

'An elevator,' Taiva said.

Destined to take him deep into the planet itself. An elevator like a hotel suite. An elevator with beds. A *long* way deep.

'We'll be moving in five minutes,' Taiva said. 'The journey to the edge of the core will take around twenty-four hours. Choose a room, if you think you're going to need it.'

Hackett goggled. '*The core?* The core of the Earth?'

'The outer perimeter, yes. The iron core – about three thousand kilometres in radius. Above that you have the mantle, silicates – essentially rock, once liquid. Another three thousand kilometres. And above *that* the crust, a thick skin which is pretty much what humanity subsisted on before space travel – that and sunlight.'

'In my day. But not any more, right?'

'Once the core was kept liquid by the residual heat of its formation, and through the decay of radioactive materials in there – uranium, thorium, others. All of these have long decayed away. The core solidified when the universe was about a tenth its current age, Hackett. And not long after *that*, people started drilling down.'

'Makes sense,' Hackett said, though he felt overwhelmed by more astounding numbers, tremendous stretches of time. 'If Earth is all you have, then make the most of it.'

'Correct. The core is the most useful, of course – its exotic metals are used to manufacture Substrate webs down there ... There are plans for the large-scale rebuilding of the planet itself. Or rather, its dismantling. But for now – well, you'll see.'

'Twenty-four hours in an elevator,' he mused. 'I think I will go take a nap ...'

He was napping again when the journey ground to an end, when this technological bubble reached the boundary of the core.

He had to be woken to be told that he had a visitor. Someone asking for him. By name.

Leaving his companions, Hackett walked with Taiva Lopic out of the transport, across an apron of rock – under a coarsely finished, rocky roof, high above – and towards a moving staircase, which took him down to some deeper level. A *long* staircase, terminating at a floor far below – as much as a half-kilometre?

‘Escalator,’ he said now.

Taiva regarded him. ‘Sorry?’

‘Took a while to dig up the archaic term. Archaic even in my day. I once saw a historical drama set in a shopping mall. Multiple levels, shops and boutiques and cinemas and theatres, and all connected by moving stairs. Somewhere between the nineteenth and twenty-second centuries ... Although my friend Icsoba and her people rode escalators into their ice caverns. My history is getting hazy.’

‘Use the Substrate.’

‘Yeah, yeah, where all knowledge resides ... It’s more fun trying to remember.’

They reached the bottom of the escalator. Hackett, with some muscle memory of these things, if of primitive archaic forms, stepped off the moving surface easily; the others were more hesitant.

They walked forward slowly. There were few people around, Hackett saw, most in the distance. To his right, though, was what looked like a cafeteria – tables, chairs, people talking, eating, drinking.

Taiva asked, ‘So what do you make of this place?’

‘Not sure. Very brightly lit. Lots of energy to spare?’

She shrugged. ‘We have the whole Earth, remember. And perfectly efficient mass-to-energy conversion.’

‘E equals m c squared.’

‘I’ll take it that means you understand.’

‘I understand that you’re burning up this one world we have, to light up a mall.’

‘*Mall* ... I’m logging your language. The history you share. But the energy usage is trivial. The insolation enjoyed by the old Earth – when the Sun shone – was equivalent to the usage of a couple of kilogrammes of Earth rock per second ... The universe is a trillion years old. It would take a hundred thousand times as long as that for the mass-energy of Earth to be drained in this way.’

‘Point taken ... I should have noticed the gravity.’ He stopped, bounced on his toes. ‘Feels like a full Earth gravity. I mean, the surface gravity ... Perhaps a little more?’

‘The core has about a third of Earth’s total mass, but about half the radius ... The numbers work out.’

Hackett nodded. ‘Of course the layers above exert no gravitational influence. If you’re in a cavity in a solid sphere, there’s no net field. Newton himself told me that.’

‘Hackett. Stop teasing the locals.’

The voice came from that cafeteria. Amidst floating platters and trays, a man was getting up, approaching. He was silhouetted against the light.

But Hackett was surprised to find he knew him.

‘You saved my life. Damn it, I can’t remember your name.’

Short, a little plump, with dark hair, dressed in a cape of gold and scarlet, he might have been forty years old, if he was naturally ageing. More likely much older since he had evidently undertaken deep space missions, which were never brief, and subject to time dilation to boot.

And then Hackett remembered. ‘*Cognate*. Captain Cognate!’

The guy grinned broadly. ‘That’s close enough. Glad to see you up and about. When we found you, your ship had been drifting a *long* time.’

‘Yeah, we were lucky—’

Before they could fit in any more reminiscing, Taiva stepped forward, intervening. She introduced herself, and described herself as Hackett’s mentor, which made Hackett cringe a little.

‘And I know you too, of course. Even before your recovery of the *Perseus*, Captain ...’

‘Ralom Ssagla.’

The surname started with a kind of hissing sibilant. *Sshth-ag-la*.

‘Come, sit,’ Taiva said. ‘Eat with us, please. On me. On the government.’

So they sat, murmured their orders into the air – just fruit juice for Hackett.

Ssagla turned to Hackett. ‘I’m not surprised your memories are muddled. But you remembered the name of my ship.’

‘The *Cognate*.’

‘Indeed. You were barely conscious, the whole time I encountered you. Your automated systems did wake you when I boarded you – some emergency protocol, no doubt. I fixed you up, sent you homeward, trailed you back. And I put *you* back into the Substrate, of course. Surprising you remember anything at all. I don’t know how much you know of the accident.’

‘Little enough,’ Hackett said. ‘It’s kind of embarrassing to talk about. The *Perseus* is pretty foolproof. Life-support systems were perfected even before I first left Earth – well, save for Substrate tech. And the dark energy ramjet couldn’t be simpler, it’s just a scoop. We were sailing between galaxies, I remember that much. Where the drive is the most efficient; there’s nothing out there *but* dark energy, except for—’

‘Except for an occasional rogue pebble,’ said Ssagla.

‘Enough to wreck our ramscoop. Horribly unlucky for us to hit anything.’

‘But,’ Ssagla said, ‘the further you travel, the more the odds stack against you. It was going to happen some day.’

Taiva studied Ssagla. ‘And you have travelled far too, Ralom Ssagla. I looked you up. You don’t make *your* monumental journeys from some heavily rationalised suicidal impulse. Unlike Hackett here, you aren’t fleeing from anything. You aren’t trying to just stay alive to remember ...’

*To remember Sarah.* Hackett kept his counsel.

‘You, Ssagla, are seeking a goal, however the odds are stacked against success.’

Ssagla looked confused at this blunt analysis; he said nothing.

‘Well, whatever reason he was out there, he found us,’ Hackett said. Now he frowned. ‘We were heading back to Earth. We had already shed some of our velocity – the time dilation was loosening. Then – wham.’

‘We knew that any rescue was going to be a *long* time coming. I remember now ... I know we even had to shut down our Substrate, to basic storage. Enough to keep our Substrate *Descriptions* intact, whatever the hell they are. And the Substrate matter printers were keeping the damn hull from *sublimating*. We were lost in deep intergalactic space for—’

‘Most of a trillion years,’ Taiva said gently.

‘My God. Still, we drifted back home, we were lost in the Oort cloud. And then *you*—’

‘Driven out there by a dark energy ramscoop of my own—’

‘OK, but *how* did you find us?’

‘Because I was already searching. Not for you ... I have networks of artificial scouts – oh, networks thousands of light years deep, thousands of scouts, a self-replicating swarm – not looking for you, specifically; you happened to be there to be found. Some of my backers, I can tell you, were disappointed to learn that the discovery was “only” the famous *Perseus* captained by the immortal Hackett John.’

‘Actually it’s John Ha— Never mind.’

‘I wasn’t disappointed. At least it proved my search methods work; if there’s something to be found I’ll find it.’ He grinned. ‘Even if it’s *only* you.’

‘So what were you *hoping* to find?’

Ssagla nested his fingers, and regarded Taiva cautiously. ‘Do you know, it’s so long I’ve been out there that I’ve quite lost track of whether what I’m doing out there is still legal or not.’

Taiva pursed her lips. ‘You’re putting me on the spot. I’d need to take soundings. On the other hand, I doubt if there would be any active willingness to stop you. As you know, though Hackett doesn’t yet, we have very expansive plans for the Earth. I’m sure you and your one ship are too – trivial – for us to be concerned with. Or, indeed, the living stars.’

‘Ah, yes. And as far as you’re concerned there’s nothing to be found out in the universe except the endless, purposeless dance of the stars – *or is there?*’

He actually winked at Hackett as he said this, a very archaic gesture, or a timeless one, Hackett thought.

But Hackett was tiring of this enigmatic wordplay. ‘Look – just tell me.’

‘You already asked me that. Several times, on my ship, as you recuperated. You kept forgetting previous conversations. I never told you the full truth, though ... Come out with me, and I’ll show you.’ Ssagla stood, abruptly, and grinned. ‘Back out in space, I mean. You’ll get to see my ship properly. I’ll leave you to think about it. I’m not hard to find. Unlike my prey.’

And he walked off.

Hackett said, ‘I feel utterly bewildered.’

‘I’m not surprised,’ Taiva said. She looked at him. ‘You’re going out with him, aren’t you?’

The ship’s name had been *Cognate*. Which, Hackett realised now, meant ‘akin’.

Maybe Ssagla was searching for kin, then. Kin of what, himself? Humanity as a whole?

‘Hackett?’

‘Hell, yes, Obviously I’m going with him. But where to?’

‘Where’ turned out to be back to the Kuiper Belt.

‘We’re heading out to a thousand AU or so,’ Ssagla said when Hackett contacted him. ‘Where the comet cloud was before Andromeda butted in, and stellar close approaches stripped it all away ... I envy you. You saw it how it *used* to be. All those comets and dwarf planets!’

Hackett was puzzled by the destination. ‘Actually there never was much to *see*, even before humans got there. Those comets and dwarf planets were pretty sparse. And by my time it was pretty much mined out already. A rust belt, abandoned shack-habitats ...’

‘Not literally rusty.’

‘Maybe not—’

‘Oh, come on. The destination doesn’t matter to people like you and me. It’s the journey, right ...?’

Hackett was actually uncertain about all this. He wasn’t sure how alike he was to Ssagla – granted, a figure without whom he, Hackett, would probably still be drifting in space, inert in a very slowly decaying slab of Substrate, slowly drifting sunward.

He had gathered that Ssagla had a concrete goal in his wanderings: not to hang on to the past, but to find ... something out there. Something evidently hard to find but of devastating importance. Something *akin*.

Hackett himself didn’t have a destination, as such, or a goal; the purpose of his travels had always been to *stay alive*, to remember – to survive the future so he could be a living record of the past. Which in turn stayed alive so long as one person remembered.

But Hackett suspected that Ssagla was like himself in one regard, in a love of their ships. Not even the individual vessels perhaps, but the way



such engineering was a gift of a universe built on physical laws that allowed you to build such wondrous monuments as starships ...

So he'd called Ssagla.

'Let's do it,' he said now. He owed Ssagla that much at least.

'Knew you'd come around.'

'A thousand AU, though? It could take a hell of a long time. You thinking of riding it out in the Substrate?'

Ssagla shrugged. 'I'll take her out at eight gravities. That way we'll be there in thirty days, accelerate and decelerate. Eight gravities isn't so bad, with *modern* technology. Trip like this, I like to enjoy the scenery on the way ... Thirty days in the Substrate for you, however, sir.'

'Screw you.' He said that in English.

Ssagla grinned back. 'I'll always acknowledge my debt to your famous *Perseus*. Why, I remember thinking – as I came upon its *drifting* hulk, *lost* for aeons in deep space – what an honour it was to be *rescuing* such a notable historical *relic* ...'

All this was expertly delivered, in emphasis and pacing, though whether that was down to Ssagla himself or his translation software suites Hackett wasn't sure.

'Alpha male bullshit, in the Year Trillion. Some things never change. I'll go pack my toothbrush.'

*That* at least seemed to baffle Ssagla's translation suites.

Hackett told his minders of the plan: Sabin, Taiva, Rava. None of them flat-out objected. Rava did say she wondered why go all that way out when the Substrate could show you as much featureless deep-space darkness as you liked in the comfort of your own home. But he was pretty sure she would have gone if the invite had come her way; her age had been a restless one too.

Meanwhile, Taiva wasn't happy at the high-G mission profile, and insisted on a suite of aids and a recuperative bed – as well as a Substrate link, just in case Hackett's antique body finally failed him.

Then they went.

Hackett had been interested enough to look up the specs of Ssagla's craft, and on the journey out was fascinated to get to explore it, as opposed to being hauled home by it as a convalescent passenger. Not that there was much in principle that differed from the fundamental design of his own *Perseus*. Both craft were dark energy ramscoops, each with a small hull trailing behind an immense scoop. The technology had matured hugely, though not in its essentials.

But whereas the wispy scoop of the *Perseus* had been comparable to Jupiter in diameter, the *Cognate's* was the width of the Sun.

After just a couple of days of the engineering tour, and some uncomfortable prodding and probing from the med systems, he was confined to Taiva's recuperative bed, a coffin-like container.

He slept a dreamless artificial sleep.

Until he was woken at last, rehydrated, fed and sluiced through, and was brought to the bridge-cum-viewing deck of the *Cognate*.

And Ssagla started to show him the sights.

‘So,’ Ssagla said. ‘You understand that everything we’ll see – almost everything – will be enhanced by the technology. The Sun’s still visible to the naked eye, just ...’

To make the point a frame appeared on the wall of the big transparent bubble dome. At the frame’s heart, a single dim star, alone.

‘I’m seeing this with my standard-issue human eyes?’

‘For now. Ready for enhancements?’

‘Go for it.’

The Sun grew quickly brighter.

‘Earth ... No, can’t see it.’

‘Course not,’ Ssagla said. ‘It’s only a fraction of a degree’s separation from the Sun. And so—’

The Sun image was quickly magnified to show a disc, and Hackett made out a smaller speck beside the central glow.

‘There’s no great value in showing you the other planets. As to where we are – as I said, the Kuiper Belt, the Oort cloud were both emptied out, scattered, through random approaches of the nearby stars during the Andromeda collision and afterwards. Suddenly the neighbourhood was crowded. But likewise the Sun stripped some passers-by of their own cargo.’

Now the dome was lit up by a scatter of starlike objects, dim, spread out. Comets, asteroids, even rogue moons.

‘Probably none of these originated in our Solar System. We keep a watch on this stuff. It’s just inert debris – but it could cause damage if it fell into the inner System. I earn a little money, in fact, feeding data to the planetary guard.’

‘While you keep a watch on the stars,’ Hackett said. ‘And other animals.’

Ssagla grinned. ‘Oh, the wonderful smart stars. You saw the discovery. You were there, weren’t you, at the height of the galaxy collision? The crisis, the conflict with the stars. Or the beginning of it. When the engineers of the day had thought they could meddle with a galaxy-smash burst of star formation ... The historians say there had been a lot of guesses about, umm, stellar sapients – even before that era. But that was the clinching moment, the proof that entities like stars could be thinking beings.’ He shook his

head. ‘Astonishing time to be alive. That much at least is well known about you.’

‘Yes, I was there,’ murmured Hackett. ‘I remember the debates, the shock – but also anger. It was a vast demoralisation. Why should we, dinky little constructs of carbohydrates and water living on a scrape of dirt on one planet, ever have thought we were somehow the centre of the universe? Under a sky *filled* with stars. Stars, the first complex things the universe *made* after the Big Bang.’

‘Right. And the legacy of that shock – look, you can see what the great concerns of *our* age are. We know we have to leave making stars to the galaxies. After all a galaxy is a kind of nursery of stars. Even the big beasts that live and die quickly return most of their material to the interstellar medium – the hot gases stars are made from – thereby enriching it with heavy elements. And we believe there is a kind of temperature control mechanism, a thermostat working on the scale of spiral arms, to keep the molecular clouds at an optimal temperature for star creation ... And out of that emerge sentient beings. Who are we to meddle with that?’

‘Anyhow. So the retreat to Earth is long over; now everyone is preparing for another kind of retreat.’

Hackett had to figure that out. ‘You mean, this plan to survive to the far future.’

‘To the end of the epoch of star formation at least, yes. That’s one strand. At least it’s a kind of fightback, but it’s still a reaction driven by the dominance of the stars themselves. There is another response, even less healthy. There’s a strand emerging – some call them *Starrists* – star worshippers. Bowing down before these entities that drove us back to our one measly planet. My view is we have to fight against that kind of irrationality.’

‘And do what instead?’

Ssagla looked at him frankly. ‘Stop apologising for existing. Stop accepting we are just some kind of side-product of a universe designed to nurture smart stars. Start believing we matter too.’

Hackett thought back. ‘I think that’s what people believed back when I was born.’ He waved a hand at the star-lettered sky. ‘Before we knew better. Before we knew, as I guess has been proved, that it is really about all *this*. Star life. And we are just – an accident. Vanishingly rare.’

‘Proved, you say.’ Ssagla smiled. ‘Vanishingly, you say. But what if I could *prove* otherwise?’

And now Hackett understood this man. It all fit together.

‘SETI,’ he said promptly.

He had to explain the term.

‘Searching for extraterrestrial intelligence. That’s what *we* called it.

‘*That’s* why you were out in space, and in a position to find my drifting hulk of a ship. Right? You were looking for non-human intelligence – non-human but *like* human, not like the living stars. Ah – *Cognate*. Meaning “kin”, correct? You are looking for our cosmic kin, comparatively speaking, their artefacts, their signals – maybe their ships.’

‘Right.’

‘But I don’t get the logic. The sky is silent – concerning creatures like us anyhow. It was silent in my day. And after all this time, after a trillion years of searching galaxies of hundreds of billions of stars—’

Ssagla held up his hand. ‘You know, we throw around these huge numbers, the timescales, the age of the universe, the vastness of the Galaxy ... But now we humans *individually* span cosmic ages; we’re becoming more conscious of such scales in space and time, more confident in thinking about them.’

‘And?’

‘And just suppose that creatures like us – solitary, planet-bound – are *not* unique, but rare. How long might it take us to find each other, purely by chance? Imagine *just one other species* on the other side of the Galaxy, emerging spontaneously as we seem to have done, and doing what we once did, pushing out into interstellar space, maybe typically moving at about Earth’s orbital speed around the Sun. Searching one star after another—’

‘A random walk?’

‘Right. And on such a scale you can figure that, with two species fumbling blind across the Galaxy making such walks, it might take trillions of years to find each other.’

‘... Ah.’ Hackett nodded. ‘But we’ve now had a trillion years of searching.’

‘And that’s why I have to keep going out,’ Ssagla said. ‘It’s time. *First contact is due*. We have a duty to look, at least. And ...’

But he would say no more.

And Hackett could think of nothing more to say.

Ssagla dipped his craft back into the inner Solar System, and gave Hackett a small shuttle to take him home to Earth.

And even before Hackett made it home, Ssagla had quickly set off again. He seemed to be relieved to be leaving – to be escaping.

Hackett would always wonder if this lonely man had theorised minds on the other side of the Galaxy because he couldn't make contact with his own kind. For whatever reason. Theorised that distant contact, longed for it so hard that in the end he would find it, whether it existed or not. Or would die trying.

Hackett didn't expect to hear any more of Ssagla in the rest of the time he spent in this epoch, however long that might be.

Meanwhile, he turned his attention to home, where people were preparing to dismantle the Earth.

Mela

Year 2

## Year 2

Mela had barely started her day's work, in the improvised shack she called an office, when there was a sharp cough outside the door.

Already, an interruption.

Bleakly, she considered the rough heaps of files on her desk. 'The only thing that will outlast the end of the world is paperwork,' she said to herself.

Another hesitant cough, and Vitae walked in. 'I knew you'd forget.'

'Forget what? Oh ... It's time for the naming of the new baby ...'

Of course it was. She'd forgotten all about that. Traditional Magistrate's duty to attend.

She stood with a sigh, and followed the Perseid out.

Selta the doctor was waiting for her with the birth party. They were only a couple of hundred paces from the nearest deepshaft, where the morning's line of *voluntary departures*, in the dry bureaucratic language Mela had to use to record such sacrifices, was already assembling.

Against this background, a young couple, the centre of this special day, stood smiling, the father holding his baby. A few family members stood by.

As Mela breathed in the fresh morning air – and as, in her head, she relegated her to-be-done list to the back of her mind – she began to relax.

Old Vitae, a green cloak, ancient and battered, flapping behind him, smiled broadly. 'Let's go be happy,' he said, leading the way.

Mela and Selta exchanged amused glances, and followed.

Vitae looked back at Mela. 'I really can see you relax, visibly. It's only early morning. You work too hard.'



‘You’ve been saying that since Procyon, old man.’

‘Well, it’s true now and was true then. But you can’t help it, can you? You’re of a type – your father was just the same ...’

*Is just the same, she silently corrected him. After he had helped them get through the Wall – helped them win a famous victory, won with words alone, in the end – Tenn had retreated back into the labyrinth of imperial bureaucracy. And so far as she knew, her father still survived, somewhere deeper into the Empire’s core lands, possibly in Sirius City itself. Along with her mother and brother, or so she had to assume. Mela hadn’t seen her father in months. Her mother and brother, not at all. Even now Immies like herself were not allowed into the city, the heart of Empire ...*

‘Enjoy the moment,’ Vitae said now, evidently seeing she was distracted. ‘The dedication of a baby: if you have to be a Magistrate, what could be more enjoyable a duty? And what grander backdrop ...?’ He gestured, turning clumsily around.

She followed his gaze. They were heading roughly south, walking through a neat landscape of fields – now choked with smartcrops, where once, she knew, there had been parkland – and town houses that still gleamed white and silver in the diffuse daylight. All this was the relic grandeur of a town deep within a Province of the Empire. And through this panorama of green and white, under a blue-silver sky studded with the pale masks of Earths, the River rolled patiently, its steady flow providing an anchor for her life, as it had since Mela had been a child in the old Procyon.

But further to the south she could see the glimmer of the Tide. The Perimeter, steadily rolling up the world. Once old Procyon had stood seven hundred kilometres south of this spot. Now even the great imperial Wall itself was smashed, crumbled. It had been an astounding sight as the Perimeter had washed over even that great monument, the ground beneath it dissolving and forcing it to shatter, chunks of masonry the size of buildings falling into the Tide’s glare.

To watch it, Mela had thought, had almost been an honour. In all the centuries since it had been built – some said half a millennium ago – nobody had seen such a sight. She was a tourist at the end of the world.

By contrast, when she looked north, the other way, into the inner Provinces of the Empire, the far distant prospect looked much as it likely had for centuries. There was the shining line of the River curling through

what so recently had been an extravagantly rich landscape. Further beyond, the Heartland Mountains rose up, with – visible on clear days like today – their foothills scarred by the pale white gleam of the Dam, still more than two hundred kilometres away. She had learned that the Dam had been built by some long-dead ruler to control the River as it poured down towards the plain. A ruler who had sought to control nature itself – and had succeeded, almost to the end days of the world, it seemed.

And beyond that, on a clear day, the peaks of the Heartland Mountains, the centre of the world, and the glitter, too, of Sirius City, the city of empire, as if high in the sky.

As they walked, Vitae scratched his head. ‘I was going to tell you something before I got distracted ... Ah! Yes. A runner from the north came to tell me, well, tell *you*, but you weren’t to be found, that a delegation from Sirius is on its way to speak to you. You, as Magistrate. Coming down the River, of course ...’

‘Not another one.’ Unsettled, alarmed – irritated, she had already had enough on her plate today – Mela looked to the north, shielding her eyes against the sourceless brilliance of the morning sky. And, yes, she thought she saw a vessel, a bright imperial purple sail gleaming, already docked at a small pier. A party climbing out, heading this way. What was it this time? Now she squinted into the light, trying to make out more details ...

‘Shit,’ she said.

That startled Vitae to silence.

‘Sorry,’ Mela said. ‘*That* is Bel Petro. Bane of my life since we got here. All she brings us is bad news and more burdens. Don’t recognise the woman with her ...’ Although, deep down, she wasn’t sure about that. Something in the way Bel’s companion walked, with a rather hesitant gait ...

Vitae touched her arm. ‘In that case we need to get the naming done before we lose you to the cares of the day.’

They hurried back to the naming ceremony. Panting a little, at last Vitae rested the palm of his hand on the baby’s head. ‘Live in peace and happiness, until you are joined with your ancestors in the eternal love of Perseus ...’

The Starrist creed was still the official religion of the Empire. Each successive emperor had been endorsed at coronation by Starrist clerics, and it seemed that there had been plenty of new emperors in the last desperate decades. But Mela also knew the Empire no longer had the time, energy or will to police petty regulations such as not allowing a Perseid cleric to oversee the celebration of a birth.

The baby was fascinated by the Perseid's green cuff. She plucked and poked, but when she tried to stuff it into her mouth the mother backed away with an apologetic smile.

That official party drew closer and closer. And now Mela felt old Vitae's hand on her shoulder, a steadying touch.

For as Mela could see, walking with Bel Petro, flanked by a couple of soldiers in their purple vestments, the second woman was her mother.

The two parties met, on foot, in the open air.

They just stood there, face to face. Being so close to a deepshaft, and with the naming ceremony just concluded, there were plenty of folk around, many staring curiously at the visitors.

And Mela's mother was here. Her old friend Bel Petro at her side.

Mela, completely thrown, had no idea what to say.

*Stick to the protocols*, she thought.

'Welcome to our home,' she said.

Bel glanced around with not a shred of curiosity, Mela thought. Nothing but utter contempt. 'This is why we built a Wall around our world. To keep out the savages. And now we must negotiate with them. In their hovels.'

Mela sensed the usually mild Selta move behind her, and suspected that the Perseid was about to make some outburst too.

Mela said quickly, 'Yes. It seems we must negotiate – about what, you haven't yet had the courtesy to tell me.'

And before Bel could speak again, Mela turned to Salja. '*Mother ...*' She held out a hand.

Her mother's eyes were downcast. She did not respond to Mela's outreach, and Mela dropped her hand.

Salja was as finely dressed as Bel, Mela observed, in a rich, heavy gown that looked too heavy for her slight figure – and entirely impractical for a ride in a boat. Her mother must be over sixty now; her hair, in a tight bun, was streaked with grey. She looked much older, Mela thought.

Mela said, 'Your hair, though.'

Now Salja looked up, perhaps making eye contact for the first time with her daughter. 'My hair?' The voice a soft rustle.

‘You still wear it up. I remember that, when I was small. And your robe ...’

Salja wore a long purple cloak, adorned with modest Starrist starburst patterns picked out in silver.

‘You look as glamorous as I remember you.’ Which wasn’t quite true.

Salja said now, ‘But *you* are not as I remember *you*.’

‘I’ve grown up.’

Salja snorted. ‘You were grown up long before we had to leave Procyon. You had to be. And for that I’m sorry.’

‘You don’t need—’

‘You weren’t the eldest. Yet you had to put up with Tabor’s bullying, and support poor Ish, your twin. Thanks to your father’s weakness and my own distraction, I suppose. You had to grow up too quickly.’ She glanced, almost furtively, at Bel Petro, as if asking permission to speak.

Bel said, ‘Take the time you need. The family stuff, if you must.’

In the face of her dismissal, neither Mela nor her mother spoke for a while.

Then Mela said, ‘What of my father? I last saw him – oh—’

‘He is well. Working in the city.’ She sighed. ‘I rarely see him. His role is junior, in Sirius. Yet he is far busier, and far more significant a figure, than he ever was in Procyon, that boxy little town. Busy, busy. He was always the same.’

‘He was always conscientious, is what I remember,’ Mela said.

Bel grunted. ‘Yes, you would remember that. And I remember you as a pompous brat. Nothing changes.’

Mela soaked that up. She said carefully, ‘And Tabor? Do you see him?’ The true question: *Is my brother still alive?*

Salja looked up, looked away. ‘I see less of him than your father. He has a commission in the Palace Guard itself now.’

‘An elite unit,’ Bel said. ‘Surprisingly enough. Works in the household itself, at the heart of the city. He’s evidently competent. Runs in the family.’

‘You’re being sarcastic,’ Salja said bleakly. ‘Yes, he’s competent. But he’s also brutal. So I’ve heard.’

*So I experienced, even when we were kids,* Mela thought.

‘But it’s the times that make him brutal,’ Salja said. ‘Times of death and decay and contraction – when only the brutal survive, perhaps, and those

they choose to protect. Such as our new child-Empress.’

Vitae stepped forward, frowning. ‘I hadn’t heard about that. A child on the throne?’

‘No reason you should,’ Salja said. ‘Not the first palace coup. I suppose there is still time for another. Sometimes, with all these closely related candidates for the Smartwood Throne, I think that they compete merely for the pleasure of being the *last* to sit there. To be there at the end. What else is there to fight for?’

‘And Tabor is close to *her* faction. Ironic, he’s become the most successful, the most influential of the family. Of all of us. But times have made him what he is. I truly believe that in a different age ...’

... *he’d have been exactly the same*, Mela thought. And her mother would have foolishly indulged his every whim, that or turned a blind eye to all his cruelties and indiscretions. *Times change. People don’t. Not really.*

And then her mother shocked her by grabbing her hand – the first time they had touched.

‘*Stay out of his way*,’ Salja said urgently. ‘Tabor – if you think you might cross his path ...’ Her words ran down. ‘Stay out of his way, that’s all.’

Her grip loosened; Mela gently pulled her hand away.

Bel eyed Mela. ‘Well, it worked. I brought your mother to make sure I got your full attention – *Magistrate*.’

Vitae said now, ‘Perhaps you should tell us what you want of us.’

Bel Petro smoothly took over.

‘Two things,’ she said. ‘Both are mandatory. Both may, *will*, cause a threat to your population numbers.’

Vitae snorted. ‘By which you mean some of us will be killed. Speak plainly,’ he said.

He still had a harsh authority, Mela thought. Even before this woman and the Empire she represented.

Bel waved an airy hand. ‘It is all a question of the remaining land area, and the food it can supply, and the people that food can sustain – that and the timing of the final collapse. As it has been for decades, across the world. It is just that now we approach the crux of it all.’

‘Listen to me now. The Perimeter will only breach the Dam, and the area within, in the final weeks. *That* is the last holdout of the Empire. But within

the compass of the Dam, there is only sufficient land, if it were *all* turned to crops, all of Sirius and its environs, to support far fewer than a million.

‘But the population of Sirius today is far *more* than that, and all those grandees and imperials and royalty, and all those who *own* the land you stand on, will not go happily into the oblivion of the deepshafts as I know some of your people do.’

Mela thought she could see where this was going.

So, it seemed, could Selta, the medic. She said angrily, ‘I know very well that you imperials have been assembling stores of food, far beyond your current needs. For *years* now. Food you have taken from us, to *store*, while we starve. All for *this*, the endgame. And now, what, you want more of us? While we can barely feed our ourselves as it is? You must know that. Even now, more and more are volunteering for the deepshafts ... They have to, to save a little more food for their children and loved ones ...’

Bel nodded. ‘Yes, yes. Fine sentiments. Yes, we want more from you. As simple as that.’

Selta’s face was distorted with anger. ‘Your oily words sicken me, woman. Get to the point.’

Mela put a hand on her shoulder. She shook it off.

‘It’s simple enough,’ Bel said. ‘There will be a system of tithes, all proportionate, as equitable as possible.’

Vitae snorted. ‘And enforced by your troops, I suppose?’

‘Oh, and we need the deepshafts to be working much harder.’

Vitae snarled, ‘Fewer mouths to feed?’

Bel was calm. ‘A much more painless death than hunger. So I am told.’ She grinned at Vitae. ‘Perhaps you should lead your people into your holy pits, Perseid. Isn’t it your belief that eternity lies at the bottom of a deepshaft? We will supply you with weapons to encourage those less willing to embrace your paradise.’

Selta began to protest.

But Mela touched her arm. ‘And if we do comply? What is *our* payback? For that is how you people think, is it not? Everything is a transaction, even life and death.’

Bel studied her, as if monitoring her reaction. ‘You are like your mother, after all. An instinct to bargain, if clumsily. If you pay the tithes and reduce your population now, then we will allow you, some of you, your elite – let

us be blunt, *you* – to come into the imperial inner province, behind the Dam, when the time comes. A few more days of life.’ She glanced at Vitae. ‘You, priest, believe that Perseus will return, at the highest peak of the Heartland Mountains, in the last days. Do you not? Wouldn’t you like a chance to see that? To *be* there, when the world ends?’

To his credit, Mela thought, old Vitae ignored that, and glared at Bel with a stern, deep-rooted authority. ‘You insult us. And if we refuse? What then?’

Bel said, ‘There are others who seek the ear of the Empress. Others who would be more – brusque – than I would ever dream. There are some who would *open the Dam*. Allow the pent-up waters to wash away this place – all of you, all your clutter, all washed away over the Perimeter and into the Substrate. That would save a lot of bother. And, I’m told, enough earth and dirt would remain for us to replant fast-growing smartcrops. Well, we only need to plan for a couple more years. A very neat and logical solution to the problem – don’t you think?’

She sighed. ‘Well, I think this conversation has run its course. We will wait for your response – by which I mean, your actions, which we will observe. No more words. Once your choice is clear we will take actions of our own, as necessary.’

She looked at them, one after another, Mela the Magistrate, Vitae the priest, Selta the doctor. Looked at them with utter contempt, Mela thought.

‘So glad to have met you all.’ She turned on her heel. ‘Come, Salja.’ She walked away.

Mela’s mother hesitated, reached out a hand to Mela, then drew back. ‘Remember. *Avoid Tabor*.’ And she hurried after Bel Petro.

Mela, bewildered, realised that the day was still young.

‘Well,’ she said. ‘What options do we have?’

Selta looked furious, and Vitae disgusted. The Perseid said, ‘I would not betray my people for the offer of a few days’ extra personal safety. I would rather die now.’

‘And me,’ Selta said firmly.

Mela nodded. ‘While my instinct is to manage things. How do we make all this as fair, as painless as possible, for as many people as possible, as long as possible?’

Nobody had an answer.



There was no real choice, Mela saw.

No choice but to endure. To eke out the final years, to make the best of the remaining time.

Years of stoical lines at the deepshafts. Of distributing food supplies that never seemed adequate. Of resisting as best they could the 'impounding' that began, the simple confiscation of food – or theft – and other essentials by patrols of imperial troops.

Of distracting children too young to understand how brief life was, and distracting those a little older, old enough to understand, and fear.

Until the northward advance of the Perimeter, the erasing of the world, accelerated to over a hundred kilometres a year.

Until the remaining years broke down into months, and the months into mere days.

Until—

John Hackett

AD c. one trillion years

He was woken from his last, lonely Substrate sleep just as the shuttle began its landing approach.

And he found his view of the Earth had dramatically changed.

The rebuilding of the planet had been going on for centuries, millennia – long before Hackett and his companions had arrived in this time period. But now Hackett was allowed to *see* the results.

As he approached he saw that the planet, with its deep-mined interior, was now surrounded by a dense cloud of habitats, large, small, some spinning for gravity but others not. A swarm of lesser vessels scurried between the bulbous bodies of the habitats, some of them dipping down to airless Earth, or lifting back into space.

He wasn't particularly surprised when Taiva Lopic popped into virtual existence in the cabin, large as life and with that subtle feeling of *massiveness* that characterised such projections in this age.

'You're back,' she said.

'So it would seem. You know what Ralom Ssagla is seeking?'

'I do.' She shrugged. 'And I think it's a fool's errand. But, you know – I'm glad somebody is following this up, at least. *What if he's right?* We may be rare in this star-filled universe, but why should we be unique? Well, we will learn a lot about ourselves if he returns, some day, with evidence. Proof of creatures with planetary biochemistries like ours.'

Hackett nodded. 'And we will learn a lot if he fails.'

She studied him. 'But that doesn't matter now, John. Perhaps it never will matter. Because we, humanity, are about to embark on our final project. Our greatest project. And it has nothing to do with the distant stars.' She glanced at a view screen – an image of Earth, the swarming ships. 'We think you are ready for this now. After the perspective you gained from

Ssagla, actually. In a universe of living stars and *us*, alone, you must see that all we have is the Earth. You understand, don't you? And so—'

'We're modifying Earth.'

'Something like that ... You know we have a highly efficient matter-energy transmutation technology. That's the key enabler. We can turn the stuff of Earth into anything we like – including energy. We have a strategy now – we call it *the Thousand Earths* – which will preserve human life and mind into the very far future. Even restricted as we are to the resources of the Earth itself. Well, that's the goal.'

'The far future. What can that possibly mean, given that here we are already in the year one trillion AD, plus change?'

'It means, for us, *beyond even the epoch of stellar death*. We plan to survive to an age when the universe will be a *hundred* times older than it is now. A hundred trillion years.'

Fourteen zeroes, Hackett thought idly.

'By then the age of star formation will long be over, and even the longest-lived stars will be fading. And if it works – if – we may leave a legacy, in that remote age, of descendants greater than *us*, greater than we could ever aspire to be ... But it does mean sacrificing Earth. For now we are retrieving precious goods, removing them from the planet.'

Hackett frowned. 'What goods? Cultural treasures? Works of art ...'

'Think big, Hackett. Whole cities! Or their remains after the surface melting. We have lifted whole slabs of geological strata, with cities – sandwiched. Embedded in cold lava. Archaeological remains of Earth's lost biota too. We'll finish up detaching much of the crust, it's thought, down to perhaps a kilometre, saving all we humans changed, built on, touched. Because when it's gone, it's gone for ever, taking any unlearned lessons about ourselves with it.'

'And what about the people who are being lifted too?'

'Of course the planet must first be evacuated of any embodied citizens.'

'"Embodied". Nice word. And what if the "embodied" don't want to leave?'

'The evacuation will have the force of law.'

'Compulsion?'

She sighed. 'A pejorative term. No-one wishes to compel. But as we see this as the only way to preserve mankind, into the deepest future, yes.'

‘And if the cost of all that is dragging some family from its home, then it’s worth it, is it? My age was full of examples of leaders, *visionaries* who thought that way.’

She closed her eyes, sat silently, for a few seconds. ‘Very well. I think I am accessing some of the incidents you refer to. Your age was a terrible one. No wonder you chose to flee from it—’

‘That wasn’t why I left—’

‘But you should compare our actions now with other examples from your own time. There were climate crises. People had to be moved, did they not, away from flooding seaboard, from desiccating continental interiors? No doubt some of that was compulsory. No doubt some resisted. But these were essentially benevolent acts.

‘Well, this is another climate crisis, if you like, John. The ultimate. *The universe is growing cold*. We must do what we can to shelter our children, and our children’s children, as far as we can see into the future. This interval of preparation, of transition will be a short one, relatively ... Well. Everything is short compared to the scope of the full project.

‘John Hackett, when you were born the universe was a few billion years old. In this epoch the universe is a trillion years old, a *thousand* billion. Our target is to ensure the survival of mankind across a *hundred thousand* billion years.’ She regarded him. ‘Which, I feel, is an ambition, a scope you have yet to understand fully. With respect. So. How do you feel about all this now?’

He frowned. ‘I’m not sure.’

‘There’s little point dealing in abstractions. Talk to your friends.’

‘I have few friends.’ Most of them refugees in time, as he was himself.

‘You’re speaking to a friend now.’

That shook him a little. ‘Very well,’ he said.

‘Your friends are scattered, actually,’ she said now. ‘Most contributing to the great project of the rebuilding. There is much to do. I’ll bring you to one of our bigger habitats. It might take some time to gather them all ...’

It was the ever patient Taiva Lopic who came to see him first.

A couple of days after his own arrival at the habitat, she showed up at Hackett's door, wearing a silvered suit.

'Very Space Age,' he said.

'Sorry?'

'Never mind. Thanks for being here.' He embraced her briefly.

She put up with that, then broke away, smiling. 'Come. There's plenty to see. And people waiting for you.'

She led him out into a corridor, glancing back at him as he walked slowly after her – his cautious pace coming from an instinct bred of long personal experience in space. In an unfamiliar habitat, when you weren't certain of the gravity and the rotation regime and such, and especially if you had just come out of hibernation, you took care with your first baby steps. Coriolis disorientation was the tripwire. The main danger was usually being made to look really dumb when you got dizzy and fell on your butt.

But still, miracle of futuristic technology or not, a corridor was still a corridor, an enigmatic passageway of closed doors and sourceless light.

'Some things don't change,' he murmured to Taiva. 'The basic geometries of human spaces. I wish I had the patent on the architecture of the corridor.'

She glanced back at him. 'Sometimes it's not hard to remember you are the most antique human being still alive.'

'I'll take that as a compliment.'

'Don't. But there are some things that have lasted as long as you have.'

'Such as? If not even the Earth?'

'Wait and see.'

They turned into a room, dimly lit. If the corridor looked like it belonged in some twenty-second-century office block, so did this room, with a low table, chairs, three people waiting for him. It was dimly lit, or maybe his eyes were adjusting slowly.

The view out of the window, facing space, had nothing to do with the twenty-second century, however.

He sensed rather than saw someone come from the gloom behind him. Soft footsteps – bare feet? And a small hand slipped into his own.

He turned to see. Even by the dim light of the dismantling of Earth, he could make out her face.

It was Icsoba.

He gave in. He knelt to hug her. It was like hugging a child. It was like hugging Sarah. A sharp, deep memory, dug from deep down inside him, he thought, just as the engineers were digging out what had once been the molten iron heart of the Earth itself.

He held her shoulders, taking a good look at her. ‘What are you doing here? I mean—’

‘I’m here for you, obviously. My home is the Substrate now.’

‘With the ice and the animals.’

‘Sometimes. But I came back, or out, for a while. You are family, Hackett. Come on.’

He let her lead him across the darkened room, towards the shadowed people.

Taiva said, ‘Enough of the surprise, we can dark-adapt again later. Lights —’

The lighting faded up, considerately slowly, and he could finally see the others. All sitting.

Sabin Roos, smiling.

Rava Pogee, eyeing him somewhat sceptically, as she always had.

As was Taiva too.

‘Shit,’ he said. ‘The gang’s all here.’ He tried to smile. ‘I can feel my face is still a little Substrate-frozen. You’d think I’d get used to it by now. I hope I don’t look too Joker.’

Hell, nobody else in the universe knew who the Joker was.

Taiva said, ‘Sit down before you fall down, dummy. Why do you think we’re all sitting? So you wouldn’t feel like the old man, the only one who

can't stand.'

Rava Pogee snorted. 'Point taken, but I'd rather be off my feet anyhow. Welcome back to the dream that is the future, John.'

Hackett sat, cautiously.

There was a lull, as a tray of food wafted in the door and began to circulate, floating in the air. They took drinks, what looked like small biscuits.

'We've gone quiet,' he said. 'And, *biscuits*. I've observed this before, at weddings and funerals and such. Not that there has been a wedding or a funeral for the last geological epoch, probably. You're going to see people you know so well, but you haven't seen them for a while, and you plan everything you're going to say to them, but when you all get together everybody clams up. And there are always biscuits.'

The tray circled round to him again but he waved it away.

'Take a biscuit,' Taiva said.

'I'm fine—'

'Take a biscuit. You're still getting over your journey.'

So he took a biscuit. It was soft, bland, filling, and felt like it delivered a sugar rush without the sweetness. No doubt nano-engineered from the crumb level up.

He glanced out the window, at the turning Earth. 'Well, it's not a wedding or a wake. But there is an elephant in the room.'

He was pleased when they all hesitated, the various translation suites no doubt stumbling over those idioms.

Icsoba was the first to respond. 'Earth. He's referring to Earth.'

'So they're disassembling the planet. I get that much. To build what, though?'

Icsoba got up, went to the window, bent, and squinted. 'Well, they've already built another Earth from the raw materials. Sort of. A prototype, I suppose. Up there.' She pointed. 'Come see.'

He got out of his chair, cautiously, pushing the floating food tray away in the process. He bent still more awkwardly than Icsoba, peering up and out of the window. All he saw was the limb of the cold Earth. He grumbled, 'Given this is my welcome home party and all, you might have got things fixed more conveniently. The whole damn planet is in the way.'



Rava Pogee laughed. ‘The universe doesn’t revolve around you, Hackett. Never did, never will.’

‘OK, but even so – oh. I think I have it.’

It was a misty blue island in the sky, seen as if it were rising over the darkened flank of the true Earth. A disc, too small to make out the details – he estimated it was a tenth of the visual diameter of the long-gone full Moon. But it was the blue-white of Earth, all right. *His* Earth. And he thought he saw a kind of halo, a greyish, pearl-like hint of colour, a diffuse, extended background around that central blue dot.

The blue was so authentic it actually brought tears to his eyes. He had to turn away, blinking. ‘Damn it.’

Icsoba held his hand. ‘I understand. You haven’t seen that colour since you left Earth, your Earth, for the last time. A trillion years ago, John.’

‘You’re telling me it’s worth a tear,’ Hackett said gruffly.

‘At least that.’

‘And your reaction is probably useful, in fact,’ Taiva said. ‘To the engineers, I mean. A check of authenticity – that they’re getting the design right.’

*The design.* ‘Whatever that is up there, it isn’t *the* Earth.’

‘No,’ said Rava. ‘But, Hackett – it’s the size of Earth in area. Or the useful part is. The blue part. Hills and plains and oceans. Gravity, the same as Earth’s.’

‘What’s the rest of it? That wide silvery setting.’

‘Substrate. Or mostly. Or will be. A thin sheet of it.’

‘It would be that.’

‘The central construct enjoys a kind of sunlight too – though not from the Sun itself, the Sun you knew. Light, life-giving, fed by a trickle of Old Earth’s mass-energy.’

‘People can live up there,’ Taiva said. ‘Normally, I mean. As normally as if they were walking around on your primeval version of Earth. Or a good simulacrum of normal ...’

*Primeval.*

‘How about surface gravity?’

Rava said dryly, ‘A Substrate field of some kind. Don’t ask.’

‘And all made from the substance of the Earth. Or the production version will be. Right?’

‘Almost,’ Taiva said. ‘The production *versions*. Yes, all made from the Earth. Because Earth is all we have ... All we ever had, in the long run. All we will be allowed to keep in the future. But it’s all we need. We think.’

And she told him the plan.

‘Excluded as we are from the stars, all we have to work with is the mass-energy of Earth itself,’ Taiva said. ‘But you know that we have power and transmutation technology beyond the dreams of your day.’

‘I wouldn’t say that, necessarily. Not beyond our *dreams* ...’

‘And Earth is quite a resource, of mass, therefore of energy. We can even leverage that energy to take the planet apart. But in fact the energy equivalent of just less than a billionth of Earth’s own mass is enough for that job.

‘We *will* take apart the Earth, and use its substance to build more Earths – *a thousand Earths*, a thousand at a time, island landscapes riding on Substrate panels like the one you can see up there. A living Earth needs sunlight – or the equivalent. We can get that by converting some of each Earth’s own mass-energy to emulate the Sun’s energy – the light that fell on your Earth. It will be more of a diffuse glow than your sunlight ... And at a cost of two kilogrammes of mass a second.’

Hackett was finding this baffling, bewildering. He clung to the numbers. ‘Even so, that will get used up in time, the fabric of that island—’

‘Ten million years. That’s how long each Earth should last. Which is a long time, my friend. Longer than the existence of the hominid group of species on Earth, from splitting from the chimps to you. We figure that’s enough. And, just as individuals grow and live and die, as each Earth lives and dies, nothing is lost, or need be lost.’

‘The Substrate.’

‘Yes. The true foundation of each Earth. Ten million years – hundreds of thousands of generations – on a world that we believe could hold a hundred million people in each generation. Remember that everybody who lives and dies on these Earths will have the choice of being stored in the Substrate,

essentially forever, and the Substrate of each island will survive indefinitely ... We can stock these worlds with samples of the flora and fauna of Old Earth, as they have survived. But again it's up to the inhabitants to live on *their* Earth as they choose. They can make their world into anything they like. A choice of paradises. Jungle or cityscape—'

'Pandora or Coruscant.'

'I'm sorry?'

'Never mind. Old myths. You keep saying these *worlds*. How many of them will there be – you said a thousand?'

'At any one time. Assembled into a rough sphere around the location of Old Earth. As each – panel – fails, having consumed itself, it will be replaced. The sphere will have a radius of something like ten million kilometres – around twice the orbit of Mercury.'

'And when a world dies – what then?'

'There will be a process,' Taiva said. 'Of course. We expect that by the end most populations will have transitioned peacefully into the Substrate, to begin a new phase of their lives – not incarnate, but eternal.'

'That may be small comfort for some,' Hackett growled.

Taiva smiled. 'Such as you, for example? We are considering mechanisms to ease that transition. After all we are discussing the evolution of a ten-million-year-old habitat, essentially. We are considering communication vehicles to help manage the final transition. Through Avatars, perhaps. Humanoid embodiments of the process.'

Rava snorted. 'Angels of death – so Hackett's ancestors might have called them.'

Hackett felt stunned by all this – almost too stunned to speak. 'And how long will that process continue? Until the resources of Earth are depleted at last? ...'

Sabin glanced at Taiva, who subtly nodded, as if giving her permission to speak.

Sabin said, 'If we have a thousand Earths in the sky at any one time, each lasting ten million years or so, the calculation is that we will be able to survive – as humans, living in Earthlike environments – for a *hundred* trillion years. When the universe will be a hundred times as old as it is now.'

Hackett knew that number. ‘Ten to power fourteen years. I was told this. When star formation will finally have ceased, and even the last stars will be dying. Leaving, I guess, remnants, relics, white dwarfs, brown dwarfs, black holes, neutron stars ...’

‘Which leads to yet another possibility,’ said Sabin Roos, sounding eager. ‘An exciting one. I’ve been working on the biological side of the Thousand Earths programme, John. Remember we said that each island Earth will host a population of a hundred million people at any one time for ten million years. That amounts to ten trillion people overall – that’s if everyone lives for a century, say. And we will have ten billion islands overall, from now to that cold future.’

‘That’s a lot of thinking power. And more. Ten trillion people, stored in the Substrate ... Remember that a human brain has a hundred billion neurones. If a hundred billion brains, a hundred billion networked *people* can comprise something greater, then one relic Substrate store from one island Earth might host a hundred of such – *composite minds*, if we chose to assemble that way.’

‘That’s just one island Earth. But we will have ten billion islands created over time, so a thousand billion of these composite minds ... Or perhaps ten super-composites, of a layer of complexity greater yet ...’

Hackett hid a smile at the smartness of the translation suites that they were all embedded in, to come up with a statement of its futuristic possibilities as clear – to him – as that. But he wasn’t buying this yet. ‘OK, look – it takes about three hundred watts of power to run a human brain – to support a human consciousness. I know that much. So when the substance of the Earth is used up, where will the power come from to keep these tiers of super-brains running?’

‘It’s easier than you think,’ Rava said. ‘Because we will face this challenge in the very far future, when the universe has *cooled* overall – it’s already far cooler, on average, than when mankind was young.’

‘And the cooler the background is, the less energy it takes to store a single bit of information.’

‘We think that the efficiency of data storage will increase by thirty orders of magnitude – a million trillion trillion, if that makes any sense. The Substrate of the very far future will be energy-poor compared to today, but

complexity-rich – far more so than now. Even that must have a limit. But it's all so far off—'

'So far off that you will have thought of something by then. So that's the plan, is it? A sky full of post-human super-brains. My God. Once this would have been called hubristic.'

'Ah,' Rava Pogee said, smiling cynically. 'I myself have felt this way too. In this epoch humans are marginalised, pushed away from their home Sun by these living stars. Remember that we planned nothing but good, even for the stars themselves. We would have extended the stelliferous era by orders of magnitude in time. We have been turned away.'

'So instead you sneakily burrow away into the far future, when the stars are gone, by which time we will have turned *ourselves* into some kind of super-composite being capable of taking on the fading champions at last. Slugging it out in the desolation of a darkling universe. Is that the game?'

Sabin and Taiva exchanged glances.

Sabin said, 'Well, it may not happen that way. It may not happen at all. But isn't it a magnificent ambition? Shouldn't we at least *try* ...?'

As they speculated further, Hackett sat stunned, somehow appalled. Thus the humans of the end times: ultimate climate refugees ... or an invading army of super-beings.

He felt like going back to hide in his sleep pod.

He felt Icsoba's small hand clutch his own.

She asked, 'Are you all right?'

'Sure. But I don't think I want to see all that.'

'Then what do you want to see?'

'People. Living their lives. That's all I ever cared about. You're the same, I think. People.'

And Icsoba squeezed his hand harder. 'Then you'll find a way to do it. You always do. Or your friends will.'

It took John Hackett another decade to make up his mind what he wanted to do with the rest of his life. And for his friends to arrange it for him.

‘The rest of my life. Or, the epilogue, as I think of it,’ he said to them all, gathered once more in yet another habitat, ten years on from that memorable day of revelations – the day of the Thousand Earths, as he thought of it.

Rava Pogee snorted. ‘An epilogue. You always were a morbid bastard,’ she grumbled.

‘Also self-centred,’ said Sabin Roos.

‘And demanding,’ Taiva Lopic said. ‘However, we will give you what you asked for.’

They sat this time in a much more spacious compartment in the Earth-orbiting habitat that hosted them. The floor was a lawn, authentic-looking grass, under a clear-to-invisibility dome. Some kind of craft sat on that scrap of lawn – small, sleek, bright green, it looked like a coffin on a sleigh, he thought gracelessly, or maybe a bobsled. He had no idea what it was.

But for once he was more distracted by the view than by a bit of technology. And what a view.

Sitting here, sourceless light bathed them, but did not wash out their view of the cosmic construction yard that filled the space above. A space where an Earth hovered.

John Hackett had seen Earth from orbit – *the* Earth, on which he had been born, when the Sun was still young and healthy. Now the ‘Earth’ that hung over his head was like a disc-shaped cut-out remnant of that brilliant low-orbit spectacle, framed by a wider disc of Substrate technology, a delicate filigree. The whole, ten thousand kilometres away, all but filled his

view. And the island Earth was as bright as the old Earth seen from orbit, bright as a tropical sky.

This must be one of the first functioning Earth-islands to have been manufactured, he mused, and nearly complete. The foundation had been that semi-material sheet of Substrate, topped by a central layer-cake of rock, with atop a sprinkling of water, a dusting of dirt and life – and people – all set under a light cycle that mimicked the day-night spinning of the old Earth itself ... It would be this way on all the new Earths, he had learned. Enough light to sustain a biosphere, nothing intense enough to burn you. There was something rich about the texture, much richer than the prototype he had been shown a decade before. It was the wrong geometric shape, but it did look like the surface of Earth to him – a slice of it, peeled off and hung up in space.

All sustained beneath a kind of simulacrum of a sky. No Sun behind it, but blue or cloudy during the days. On a clear night you couldn't see the stars, because they were all dying.

But you could see *the other Earths*. Even now he saw some of them, still only a handful under construction, even fewer inhabited so far. But still, there they were, far off, glimmering silver panels with pale blue dots in the very centre. An astonishing sight – a heavens built by humans, with the materials of the Earth. Or anyhow, a construction in progress.

And all of this would last until the universe was a *hundred times* its already advanced age. It baffled him. It appalled him. It filled him with wonder. He wanted to hide under the covers from it.

And so he had decided to do what he had always done, he supposed.

Which was to travel ...

Unable to take his eyes off the view, Hackett let himself be led to a chair. The rest of the group were sitting around a table.

As if reading his mind, Taiva said gently, 'You always claimed to be a wanderer. How would you like to wander among a thousand such island worlds?'

'How the hell? Not in my beloved *Perseus*.'

'No, no. We've been talking it over. Any one of the Thousand Earths might be enough for most people. But you are John Hackett. And so – well, take a look.'



She gestured at the small craft on the lawn, gleaming, its hull a green as brilliant as the smartcrop grass-analogue of the lawn itself. He'd been distracted; he'd forgotten it was even there.

Taiva said, 'Your *Perseus* is safe in an orbital museum, for now—'

He had checked, more than once.

'—safe while you fly off around the Thousand Earths aboard that toy.'

That took a moment to sink in. 'This is for me?'

Taiva smiled. 'Go see.'

Hackett felt dazed. He got up from his chair and walked over to the ship.

Taiva followed him.

The craft was maybe the size of a very small car, as he had known them back in the day, during what he thought of as his first life.

The central body was actually more like an enlarged coffin, he thought – a coffin fit for Frankenstein's monster, though, and *that* was another reference no other human in the universe would have understood, he suspected. And, he quickly learned from his companions, it was in fact essentially that – or anyhow a coffin upgraded with Substrate technology. He could live in this thing for centuries at a time, even longer, while its flawless engineering preserved his mortal body.

And while he slept, so they told him, he could sail among the Thousand Earths. Landing on one after another, as he chose.

He took a closer look. The green coffin-hull sat on a small tangle of engineering, none of which he recognised. He had had no input into its design. He pointed at the tangle. 'The drive unit, I'm guessing.'

Taiva nodded. 'If you can call it that. Look, we knew you would want to travel. So we have given you a ship capable of travelling between the Thousand Earths. As for the drive – you understand that all the islands will be sustained, and bound to each other, by a complex network of fields. Translation: that's what stops them folding up, or drifting off, or crashing into each other.'

'Wow,' Hackett said. 'Crashing? That would make a hell of a disaster movie.'

'No meaningful semantic content,' Taiva said, 'is all my translation suite can tell me about that remark.'

'Sorry. I'll shut up.'

‘A network of fields, then. And that’s what your ship will climb through, how it will propel you. By tapping the structural fields of the wider system. Obviously there are security and safety protocols. You won’t so much pilot it as – make polite requests of it. If the various smart systems are agreeable, the ship will be picked up from the surface of one island – like the one up there – and transported across space to wherever you wish to go – so long as no harm is done to anybody, or any *thing*.’

‘No stunt flying, then.’

‘No meaningful semantic content again. But I can guess. Look, Hackett, this is serious—’

‘I know. I’m listening. I’m very grateful.’

He reached out and touched the sleek hull, for the very first time.

It seemed to shiver.

‘Oh, wow. Why does it do that?’

‘As a sign that it recognises you. It won’t let anybody else aboard without your permission ...’

‘I ... This may be the most beautiful thing I’ve ever seen.’ He pointed up at an island Earth. ‘Except maybe for *that*. You people are quite remarkable, you know.’

‘Thanks,’ Taiva said dryly.

Icsoba stood and walked over to the ship herself. ‘It is beautiful. But is this what you want – *all* that you want?’

He took her hand. ‘Well, you know me, Icsoba. I’m a traveller. Have been ever since ... since I lost my roots on my own old Earth. I travelled far across space, and through time, in my trusty old *Perseus*.

‘And I figure that it’s meaningless for me to stop now, to stop in any one place ... But on the other hand it’s meaningless to travel far. I mean: across the universe. We *know* there’s nothing out there but brooding stars and drifting galaxies, don’t we? Nothing like us – unless Ssagla’s SETI search came up trumps.’ He gestured at the sky. ‘But, look at this! The sky is going to be full of island worlds, worlds full of people, and when they fail there will be more, and more ... Who knows what people will achieve? Who knows what they might become? And who knows what I might be able to contribute? I can share my homespun wisdom with future ages.’

Taiva glanced around at the others. ‘You do know he isn’t kidding.’

‘Damn right I’m not kidding,’ Hackett said. ‘Look, I’m not the only wanderer from the deep past, right? We aren’t unique, surely? We can’t be. Have you ever thought that maybe we relics might serve some evolutionary purpose?’

Icsoba said hesitantly, ‘Yes, actually. I think we – unite. We blaze trails. We go *further*. We discover. And we stitch the whole human race together as one family. Because we, at least, remember.’ She looked down at her hands, one folded over another. ‘That’s what I think of, when I miss home. At least I *remember*. And *that’s* what I will take to these new worlds.’

Hackett reached over and rubbed her back. ‘That’s exactly it, kid. What drives me on too—’

But Rava broke in, disrupting the moment. ‘John Hackett. Give me your ship. You have this new craft. The *Perseus*. Give her to me.’

That startled him.

‘My *Perseus*? Why the hell would I do that?’

‘Because she wasn’t built to be a museum piece,’ Rava said. ‘And neither was I – any more than you. I’m a traveller not much detached in time from you, remember. Let me go and explore some more. Let *us* go. I mean, what’s the alternative, to let her hang there in some orbital museum until her hull plates sublime away?’

He thought that over. ‘Will you take care of her?’

And she considered that. ‘I swear that *Perseus* will have an honourable death.’

He nodded, curtly, not letting himself think about it any more. But he silently promised himself he would go visit the old tub before he left.

And he stood by the sleek new craft, hesitantly touching it again. As if he was transferring his loyalty from one ship to another, he thought. ‘It doesn’t seem real. Sometimes all of this – my extraordinary life – feels like some strange dream.’

‘Your ship is real enough,’ Icsoba said. ‘Will you call it *Perseus II*?’

He looked at the compact, bright green craft once more. ‘I was thinking of that, yes. But I think maybe that will just be confusing. Myself and this ship – we’re going to be a unit as long as I survive, aren’t we? So, let’s reflect that.’ He stroked the hull. ‘Myself and my ship.

‘I am *Perseus*.’

He looked into the inhabited sky. ‘When can I leave? ... Oh, but there’s one person I want to try to look up in that Substrate of yours. It’s a long shot but you never know. Been meaning to do this for a trillion years, I guess, so I owe her. Her name was Denise Libby, and we used to be married ...’

## Mela and John Hackett

The last twenty days c. AD one hundred trillion  
years

*Day 20*

It was not until the twentieth day, when her father came stumbling out of the Dam's access door, heading across the crowded ground towards what was left of the young-old township they had come to call New Procyon – not until then did a fragment of hope lodge in Mela's mind.

Until then, she realised, she had more or less reconciled herself to her own death – and the imminent death of her world, her people, all she had loved and fought for. The story was over.

After all there were just twenty days left for the whole world, or so Vitae the Perseid calculated. And fewer than that for Mela and her people, far from the centre, far from the Heartland Mountains at the middle of the world. Indeed, for her the end could come at any time. So close in, the surges of the Perimeter became less and less predictable.

Why not be reconciled to it? She had lived for forty-two years – probably more time than half the world's surviving population had enjoyed.

So, this morning of the twentieth day before she died, her chores done, she set out alone for once, and found a place to sit, and just – looked. And the dying world, twenty days out, was putting on a pretty good show.

To the north, the great smooth face of the imperial Dam, no more than a few kilometres away ... smooth still, yes.

But even from here she could see the great cracks Vitae had spotted some days ago, cracks that seemed to be spreading, growing, with branches running off across the huge face of the structure.

Of course the Dam would start to crack, Vitae had said, as the land before it crumbled and fell away. The foundations of the Dam must soon be fatally undermined.

*'It will fail within two days,'* Vitae had said to her just yesterday. *'We may or may not live a little longer than that ... We'll see.'*

Meanwhile, to the south, no more than a short walk away, there was the Tide.

Once far away, far to the south – a thousand kilometres away when she had travelled there with her family – now it was *here*. She could see flashes like lightning – and, in the air, she smelled the ozone tang of lightning too, a strangely *active* smell. And she heard the hiss and steaming of the River as that great flow poured against the Tide, and its water flashed to vapour.

The Perimeter was *here*. And all the people left alive in the world, she realised, outside the inner lands of the Empire itself, were crammed into a strip no more than a few kilometres wide, all around the Heartland Mountains and the central imperial terrain.

Yet people lived, here in their last home, in the shacks and lean-tos made from the materials they had dragged up here, even as the Perimeter had marched towards their camps. They moved about, they worked, they made meals. Nearby, Mela saw a man repairing torn trousers that he might never wear again.

Children played.

Earlier, some older kids had organised foot races to and from the Dam. Laughing, playing, fighting. Mela had seen how they cast strange double shadows now, from the light of the sky, and the eerie horizontal glow of the Tide.

But, further in the distance, Mela made out a line of folk, old and young, families together, queuing patiently by a deepshaft – itself no doubt a relic of a long-vanished town. Selta the doctor stood by to soothe any final panic, and Vitae the cleric was there, no doubt murmuring words about the love of Perseus into which these suicides were about to be received.

Mela knew that Selta, no believer, intended to use the deepshaft herself, in a calm moment, before the Tide reached the Dam. Mela felt oddly confused herself as she considered this, this cool, rational plan of one of her closest friends. There was nobody wiser than a doctor.

Mela wondered if she would choose that option herself when the moment came. A question she hadn't asked herself before. A question everybody faced.

That was when, as she mulled this over, everything changed.

She saw one of the Dam's access doors open. And emerging from it came Peri, another close ally from all the way back to Procyon, running towards her, with a man, older, slow, in imperial purple, limping after her.

The older man was Tenn, Mela's father.

Soon she could hear Peri shouting. 'Mela! You must come! It's Tabor. Your brother! He's wrecking everything ...!'

Mela stood up. 'My damn family,' she muttered.

As she ran, she yelled for Vitae to come over.

She could see the Perseid hesitating before the line of supplicants at the deepshaft. But Selta seemed to reassure him that she would stay. So Vitae came away, and together they hurried over to Peri and Tenn.

By the time they met them, Tenn was bent over, wheezing. Peri, the tough survivor from Procyon, now looking stern and smart in her imperial-purple Household Guard uniform, stood by him, supporting him.

Vitae, gasping for breath himself, bent over and rubbed Tenn's back. 'Oh, my. Oh, my word. Are you all right? Perhaps we should fetch Selta—'

'Leave your doctor be.' Tenn said, standing straight with an effort. He was still wheezing, ghastly pale. He turned to his daughter. 'Mela. You must come.'

She took his hands. His whole body shuddered as he dragged in deep breaths; his palms were clammy. She said, 'If the world wasn't about to end I'd recommend you go back to bed.'

He eyed her sideways, with a glint of his old humour showing through the exhaustion. 'No more jokes,' he said. 'You must come and help.'

Peri nodded. 'There's fighting in the palace. Oh, they have been fighting for weeks – a last chance for coups and counter-coups, allies and enemies of the child-Empress squabbling like children themselves, even as the world crumbles around us.'

'*But it's your brother, Mela,*' Tenn said. 'Your brother. He's the real troublemaker. Discipline is breaking down in the Household Guard, just as everywhere else across this benighted world. Tabor would never have become an officer, but he's senior in the other ranks – and he has gathered quite a following. He always was a thug among thugs. Like a gang leader perhaps ... And now is his moment, now he makes his move, in all this ... chaos.'



Mela said, 'What does he want, to rebel? To become Emperor for half an hour himself? Why not let him? What difference does it make?'

'No,' Tenn said. 'Not that. It's all much smaller scale than that. He means to destroy something far more important than a mere empire. Just because he believes he can, I think. Or, perhaps steal it for himself. Vitae understands.'

The priest nodded grimly. 'There have been rumours spread by Perseid sympathisers about this. He may do great harm, Mela.'

'Come on,' Peri said now. 'All of you. We have to go, now.' She grabbed Tenn's arm, and nodded to Mela. 'Help me with your father.'

Mela, bewildered, did as she was told.

With Mela on one side of Tenn, Peri on the other, soon they were half-jogging back towards the small doorway in the face of the Dam which, Mela saw, Peri had left open.

She glanced back at Vitae. The priest was already struggling to keep up.

'Just go,' he called. 'Don't mind me ...'

'No. We need him,' Tenn called between gasps. 'We need a Perseid.'

'Why?' Mela demanded. '*What is my brother trying to do?*'

Peri said, 'You know he despises the Perseids. Nobody knows why—'

Tenn grunted as he stumbled along, 'It's because he always despised me, his father. When he got to Sirius he took to the imperial purple, Starrist purple, as if born to it. The Starrists believe humanity means nothing to the cosmos, that our lives are no more than games to be played out. And for a Starrist, in this final hour, what better game than to destroy the hopes of all those who dream of Perseus? For Tibor, what better than to smash the hopes of his own father? The most destructive thing he can think of. What better than to *steal* the chance of a life beyond the coming of the Tide? *That's* how he wants to mark the end of the world – and there's a twisted calculation that there is the faintest chance of saving his own wretched life, or so he believes. Oh, but the damage he might do in the process – if the legends of the Perseid's tomb hold any truth – oh, it's all my fault. Mine and your mother's, Mela. How we have failed him! How we have failed the whole world!'

'My mother ...' She had had no news of her mother for many, many days. And now it came in this blizzard of enigmatic words. 'Never mind. *What is Tabor—*'

‘You must understand,’ Vitae gasped, stumbling up. ‘The deepest secret of our order is that *the Tomb of Perseus himself* still exists. That it’s not just some legend from the founding of the Empire ... It is said to be in Sirius, long ago stolen by the imperials, but safely lodged. You reach it from a place called the Silver Tower, a very old structure. Yes! And on the Last Day – only twenty days from now – *that Tomb will open*. Perseus will rise. And all of us will be cherished in his memory. All of the dead. So it is said.’

All of the dead.

*And Ish*, Mela thought immediately. All that was left of Ish, all that could possibly remain, was tied up with that Tomb.

If it wasn’t all superstition. If the Tomb existed at all. If it had the semi-mystical properties attributed to it by its believers – and Mela wasn’t sure she was one of those believers, or ever had been. Her own mother was a Starrist. *But, here and now ... Why shouldn’t I choose to believe? What else is there to hope for?*

Tenn said, ‘Thus the legend. And – so the gossip goes, and I think it must come from what he has told your mother – *Tabor thinks he knows where the Tomb is*. Indeed, some say he has already taken it, from its secure hiding place. The Empire is fraying, like the rest of the world; it’s not much of a surprise that such secrets are leaking out now. Tabor intends to steal the Tomb first, and – sell it. Or smash it. Whatever benefits him most. Or has already done so ...’

Vitae gasped, limped, struggling for breath as he tried to keep up. ‘What a crime ... What an epochal, unprecedented crime. He must be stopped. We must stop him!’

Tenn raised his head wearily. ‘Well, of course we must stop him. Why do you think I came down to your final beach?’

Mela shook her head. ‘This is all happening in such a rush. Father, please – what of Mother?’

Tenn glanced at her as he staggered on. ‘Ah ... What a time to have to tell you. What a way ... I should have ... She’s gone already, my child. A suicide pact, with Bel Petro. They were lovers – did you know that? Although I always thought it was a case of Bel *using* Salja ... I could say nothing to help her. We must talk this over.’

Despite this terrible news – it hit her like a punch in the stomach – Mela found she wanted to laugh, giddily. *Talk it over. When? When will we have*

*the time, before the world ends ...? And if nothing else happens at all, this is the day I learned my mother committed suicide ...*

They were nearing the Dam already. That open door in its face beckoned them into shadow.

Mela tried to focus. ‘Now what?’

Peri was hurrying ahead, her arm around Tenn. ‘There are means to move around inside this structure. But first, we climb.’

‘Stairs,’ Vitae said, wheezing. ‘Not stairs.’

And Mela took Vitae’s arm. ‘Come on, Perseid. I’ll help you. We’ve been through worse than this ...’

As the others stumbled through the doorway ahead of her, Mela looked south one last time.

She saw the thin strip of surviving land, the crackling approach of the Tide. And her people, calm, playing with their children even as they lined up before the deepshafts. She looked for her oldest friends, Khem from the boats, Selta the brave young doctor ... She would never see them again.

‘I’m proud of you all,’ she murmured softly. ‘Proud to have served you. All the way from Procyon ... Proud to have known you.’

Peri called, ‘Mela? Are you—?’

‘Never mind. Climb, climb!’

To Mela's great relief, Peri told her that the staircases they climbed at first didn't extend far into the great carcass of the Dam. And there was some light – mostly from shafts cut through the massive thickness of the Dam itself, and, here and there, translucent panels that shone with a pale blue glow: not daylight, an artificial illumination.

The walls they passed were smooth, but not worn. Smooth as the day they were made, she suspected.

'Those shafts,' she murmured, as she dragged her father up yet another flight of stairs.

His head lolled. He gasped, 'Shafts?'

'For the light.'

'What about them?'

'I wonder how *they* were made. How people cut through this ... stone, this great mass of it.'

He half-laughed, despite his obvious exhaustion. 'You were always the curious one. Wanting to know how things worked, in the world, in other people's heads.'

'And look where it got me.'

'You're still alive, aren't you? ... And now you're helping keep *me* alive. Look – I don't think this material is *stone*. You can't shape stone on such a scale. Imagine carving all this out of some mountainside!'

She was gasping with the effort herself, but she sensed that to keep him talking was to keep him conscious – even alive. 'What, then? Was the Dam grown, like some chunk of smartwood, a panel for furniture?'

'Something like that,' Vitae said. 'But on a tremendous scale. The nascent Empire, its conquests complete, brought to its new heartland the best, the most knowledgeable artisans and engineers of the age. And this

Dam, a structure that controls the water supply of much of our Earth, was quickly built – some say with its channels and tunnels and pathways already in place.’

Tenn said grimly, ‘It’s also said that when it was all built the imperials slaughtered those same engineers and dispersed their ancient knowledge and techniques, so that none could build anything to rival what they had done – not on this Earth ...’

But he subsided into coughing as, limping, with help he dragged himself up another stair, and another.

At last the staircase ended.

Mela found herself looking into a boxy little room. Here, away from any window shafts, the light came from the walls themselves, shining that pale blue. Without hesitation, Peri pushed into the room, supporting the priest much as Mela was supporting her father.

But Mela hung back in the doorway, cautious, her father clinging to her arm. ‘I don’t see any more stairs. But we can’t have climbed all the way up the Dam—’

Vitae, panting hard himself, said, ‘Sometimes you think too much, Mela. Just get in the cursed room.’

She obeyed, helping her father.

And once they were in, the opening behind them was sealed by a descending slab of stone. That low light brightened, a light from no source she could see but the air itself.

Mela had never been in such a closed-in space in her life. She glanced at the others. Her father leaned on her, apparently half asleep. The Perseid, too, looked too weary to be alarmed. Peri looked intent, anxious – but anxious to get on with her mission, Mela thought.

On the floor were a few small packs – military issue, Mela thought. Peri saw her looking. ‘Take one. Food, water, med stuff.’

‘Evidently,’ Mela said cautiously, ‘we aren’t going to die in this box. Because otherwise you wouldn’t have led us into it.’

Peri rolled her eyes.

Her father said with difficulty, ‘You are naïve, child, in some ways. But then, for all you have seen and done, you’ve never been to Sirius before, have you? Built on greed and slaughter it may be, but it is full of wonders

...

‘Be patient. Look. This whole Dam is a – machine. And smarter than it looks. This little room closes around us, and we wait a while, until ... well, until it opens again. And we may find ourselves elsewhere.’

‘I don’t understand,’ Mela said.

‘Well, neither do I,’ Tenn replied. ‘But I know how to use it, and that’s enough. And after all, all of this will be gone in mere days ...’ Peri, Mela, Vitae all took packs.

And then the wall before them dissolved, neatly and soundlessly. Mela leaned forward, out of the room.

And suddenly she was *high*.

A cluttered brilliance in her eyes. A jumble of noise in her ears after the silence of the room.

Tenn grasped her arm, and led her forward.

And Mela stepped cautiously out of the room, through a wall that no longer existed.

She was standing on a balcony, set on an inward-curving wall, overlooking a kind of immense, open bowl – that was her first impression. A bowl many kilometres across, surely, with blue sky above, streaming clouds. From the upper rim of the bowl hung huge flags, or standards, most with variants of the Empire’s sigil, a tower with a crown of Earths. Flags the size of fields, she thought.

And the flat floor of the bowl, far below, looked like a map, to her, a pattern of roads and walkways, straight and curved, that sliced up the floor area into smaller pieces. Some of these sectors were greened, given over to parkland. All this under a brightening morning sky that was partly occluded by the bulks of towers. In that sky, a single visible Earth hung like a lantern.

As Peri helped Vitae come forward, Mela looked back at the wall behind her. Once they had all passed through, already the entrance had vanished, leaving only an outline trace.

She had to ask. ‘How did we *get* here? How did we get so high?’

Vitae shrugged. ‘The Dam itself lifted us up. Our little room rose through the smart stone like a bubble in water. Does it matter *how*? This is the technology of the ancients, who built the world, remember. It does not matter if we understand. So long as we remember how to use it ... It doesn’t

matter. What matters now is where we *are*. This is Sirius, Mela. The greatest city in the world.’

And Mela just stared down. She had seen nothing like this, in her life.

Everywhere people swarmed, along the lanes, or working in the green places, or gathering in the more open squares. There was a constant murmur of noise, of voices, like distant rainfall, perhaps. And somewhere she heard a flute playing a slow lament, rising from that parkland – no, not just a park, she recognised the colours even from here, the greens were the pale shades of edible smartcrops. So even the folk of Sirius were attempting to feed themselves, as well as live off the stores she knew they had amassed while systematically looting the Provinces, and the Hinterland beyond the Wall. She wondered how well the crops grew in this diffuse, sourceless, colourless light.

And she thought that you could have put the whole of Procyon down in that clutter and lose it immediately.

She stood back now, and looked around more carefully, trying to think, understand. She saw that the central cityscape below was enclosed all around by much grander buildings, many topped by towers – each of them individually designed, she saw, even eccentrically, some of them linked to others by bridges, aerial walkways that must be terrifying to cross. The tower directly opposite her was particularly spectacular, coated with silver surfaces that caught the light of the sky.

And all of the towers together crowded around the city, walling it in, a city-space perhaps ten kilometres wide.

Far above, a splash of sky.

A silver tower, though ...

Her father limped over and stood beside her. ‘Our quest is urgent. But you should take a moment to understand what you are seeing here. Sirius, capital of the world Empire—’

‘What’s left of the Empire. What’s left of the world.’

‘It’s still a prize worth fighting for,’ he said. ‘Yet the city didn’t always exist. Not in this form.’

Vitae said, ‘That’s true. Our oldest reliable records go back only five hundred years, when the world was already shrinking – still huge, some ten thousand kilometres across, back in those days, but small enough for one determined culture to dominate the rest.’

‘The ancestors of the imperials first appear in the record as nomads, who came riding out from the country we now know as the Hinterland – star worshippers, they were already – and they conquered province after province, into the Heartland itself, and, heading south, all the way to the Perimeter.

‘After suppressing a wave of rebellions and civil wars, they fell back to the Heartland, with their captured resources and slaves, and they *built*.

‘They built the Dam – having kidnapped engineers and other experts from across the world to do so. Their purpose was to control the water supply to the whole of the world, if need be. Oh, and when the Dam was complete, when the seasonal rains first came, the land it enclosed was flooded, of course – and the cities that had once stood there were lost in the human-built lake, drowned, to this day.

‘Those lost towns and cities had been built by the Perseid nomads, or their descendants, who had settled here and made a peaceful province. And some said that in one of those drowned temples *the relics of Perseus himself were lost* – even his tomb, perhaps. But others claimed later that the new imperials had searched for and stolen those relics before the flooding.

‘Meanwhile the Starrist imperials extended their control. They built their Wall to keep out the barbarians. And as the inner provinces grew richer and more populous, the empire builders began the systematic looting – or taxation, if you like – of the “Uncivilised” world beyond. But nowhere, they say, did they find Perseid relics of the antiquity and authenticity of those retrieved from that drowned capitol.

‘And, some say, some of those relics – some very precious, the most ancient – are still kept here, in Sirius ...’

Mela looked again at that silver tower directly opposite. ‘Well, I can see where this is going. *That* tower?’

Vitae’s face was a mixture of awe and joy. ‘I’ve been here before. I have never seen that. Perhaps, perhaps ...’

Peri said, pointing down, ‘Look! Over there. See, by the far wall?’

Peering, Mela thought she made out cage-like enclosures, within which dark forms moved slowly – slowly and sadly, she thought.

‘Animals,’ her father said, screwing up his eyes to see. ‘Aurochs, even a few horses. Caged birds. The last large animals in the world, almost certainly.’



Mela squinted. 'I can't really see them ... Perhaps one big beast, pacing up and down in its cage, pacing, pacing.'

Tenn sighed. 'Well, there's nothing to be done. No more room for the animals, any more than for us. To save them until now is an act of unusual kindness for Sirius City, believe me. But probably they can still spare the stores.'

Mela thought about that. 'Stores that might have fed *us*. But it's hard to begrudge these last wretched animals their lives, isn't it?'

Tenn looked saddened, but oddly pleased. 'You are wiser than your mother or I ever were, and always have been. I am very proud of you. It will all be over in twenty days' time anyhow, won't it ...?'

'So many people. I keep being distracted. So much motion, so much – business?'

Tenn said, 'I doubt that you would have understood a tenth of what used to go on here, even perhaps ten or twenty years ago. Bel Petro's intricate provincial property dealing, with your mother and others, was among the easier stratagems. Now it's all simplifying, of course. Virtually no trade beyond the inner walls of the city at all.'

Mela pointed down. 'But I think I do understand what *those* people are doing.' A band of labourers, female and male, working with huge hammers, spades, rakes. 'Demolishing that small building – is it a temple? Clearing the ground, to grow crops? Here in the middle of the city?'

'Indeed,' Tenn said ruefully. 'You must understand ... Even here there has been a brutal winnowing. The central city you see before you, ancient as it is, had become a kind of business district. Aside from the imperial court itself, people didn't necessarily *live* here, or stay for more than a night or two. The Provinces were where you lived ... At one point Bel Petro had a villa there. Your mother loved it. But now, all those who survive of the citizenry of Sirius, from the infant Empress to the lowliest Guard—'

Mela thought of Tabor.

'—must live *here*, in the centre. Because there is nowhere else to go.'

'But there isn't the room for them.'

'You and I have long known this. Not enough room in the whole world. The citizens of Sirius learn the lesson now. What's done is done. So now they are doing what we had to do in Procyon all those years ago, what people all over this world must do – over all the worlds of the Thousand

Earths, probably. They are having to clear ground for food. And you see the result.'

He waved a weary hand, and seemed nearly to lose his balance; Mela grabbed his arm to steady him.

'But in the end none of it makes any difference. The food – the city core you see before you is barely ten kilometres across. There are about twenty thousand people still living in the city. But it is overcrowded. The land, even if entirely cleared, could support only seven, eight thousand for any length of time. The rest are largely fed from the stores they gathered from the external world, while that was still possible.'

'Ah. All those years of systematic theft, disguised as tribute. All for this. The end days.'

He leaned closer. 'Yes. And I can tell you that the end of all *this*,' he waved a hand at the cityscape, 'is closer than people think. I suspect the leaders are keeping the news quiet while they pursue their own final ambitions. Despite the hoarded supplies, Sirius won't make it through another twenty days, to the end of the world. Not without food riots. So, the ground clearing you see. And – look over there – they are quietly opening up ancient deepshafts, down there on the ground.'

Mela frowned. 'How do you know all this?'

Vitae replied to that. 'From the Perseids here. To survive in this Starrist city we have always had to be secretive, to communicate essential information to each other – to support each other. We know what's going on better than the government, I sometimes think.'

'It is a cage,' Peri said now, her face hard. 'This city. I've had to deal with these people, once I was reluctantly drafted in to help keep them safe from – well, from people like me. The Sirians are trapped in cages in their heads, just as much as those last, wretched animals are. Come. We have more walking to do.'

Mela suppressed a groan. 'Where to this time?'

'This way.' Peri raised her arm to the right, and began to lead them in that direction, around a kind of balcony that followed the curved wall behind them. 'We have to cross the city – see that silvery, slim tower on the far side?'

Mela had been expecting that, from the legend, from the stories of Perseus. 'We have to go there. But that's as far away as it could get from

here.’ She looked doubtfully at Tenn, Vitae. ‘To walk around there will be, what, fifteen kilometres?’

Peri smiled. ‘Have faith ...’

And then, with the subtlest of lurches, the floor itself began to move.

It slid smoothly and noiselessly along, in the direction they had set off. Vitae, taken by surprise, nearly fell, waving his arms for balance.

But Tenn reached out, took her hand. ‘One leathery paw in another. Don’t worry, old friend. It just takes a little getting used to. More gifts of the ancients. These upper walkways are designed to help us, you see. It’s like the remarkable little room that lifted us *through* the substance of the Dam. Do you imagine the Empress *walks* anywhere? Look, if I can manage it then you can. And we’ll get through this little jaunt a lot faster than you think.’

Peri took Mela’s hand, grinned at her. ‘You all right?’

Mela tried to focus. ‘This moving floor ... I have a feeling this isn’t the strangest experience I will have today. So, the silver tower ...’

Vitae said, ‘There are many legends about Perseus’s journey across the sky in search of Andromeda, and his visits to this world in antiquity – but maddeningly few specifics. But there *is* a tradition, old and obscure, that says that when the Empire was founded, when the capital city – Sirius – was built, the Tomb of Perseus was *brought here*. And laid in a silver tower ...’

Peri nodded. ‘I think the Household Guard legend is that the coffin was a trophy of war.’

Vitae studied her. ‘I have always wondered if you are a Perseid – or at the least are sympathetic to the faith.’

‘I wouldn’t have got myself killed for it. I’m prepared to believe *he* existed. And if Perseus lived and died, he *may* have had some kind of tomb. That’s logical. And, even if you see him as just a captured enemy – or an enemy’s god – where better to put him than the centre of the world?’

Tenn murmured, ‘I too have heard such legends; I have longed to believe this could be true.’ He sighed. ‘But I am a scholar as well as an acolyte, Vitae. And I have to consider the proposition logically. There are, or were, a Thousand Earths in the sky. Perseus presumably belonged to them all. So why should Perseus have come to rest *here*, on this particular world?’

Vitae just smiled. ‘Generations of philosophers have debated that very point.’

‘And their conclusion?’

Peri shrugged. ‘Had to be somewhere. Why *not* here?’

‘A pragmatic view,’ said Tenn, smiling. ‘I am impressed by your wisdom, Peri. If you’d had a decent education, if you had lived in a different time—’

‘If I hadn’t been brought up as nothing but a strong-arm thug?’ She shrugged. ‘I’ve lived the life I’ve been given. You can’t do more than that.’ She grinned. ‘And, in the end days, here I am in Sirius City itself. Where else would I want to be ...?’

They rode for a time in silence, a kind of moving island of calm above the turmoil of the city below.

‘Ah,’ Peri said at last. ‘We are slowing.’

Mela could feel it, a slight drag that made her feel a little off balance. Reflexively she grabbed Tenn’s hand; her father squeezed her fingers gratefully.

She saw that they had already come to the face of that silvered tower – tall, sleek, elegant, somehow mechanical looking. A kind of mesh gate was set into that face.

And someone was waiting for them at the gate. A woman, in expensive-looking, practical-looking purple jacket and trousers.

Mela felt her father’s hand in hers grow light, weak, take on a papery touch. ‘Stay calm,’ he murmured.

It was Bel Petro.

As soon as the walkway finally stopped, Bel hurried forward and grabbed Tenn’s arms.

‘Oh, you came. Thank you. Thank you! I tried to get messages to you. *It’s your son* – your brother, Mela, your brother Tabor – there has been a kind of rebellion among the Guards – they say the Empress has been assassinated. There is no control. No authority. Nobody to stop him.’

Tenn scowled. ‘Then things have moved on since I’ve been away.’

Peri snapped, ‘To stop him doing what? What does he intend to do?’

‘To steal it. Find it and steal it. The sarcophagus of Perseus.’

‘As we had heard,’ Vitae growled.

Mela glared at Bel. ‘Why? What does he *want*? ... Never mind. Bel Petro. They told me you had a suicide pact with my mother. And yet here you are.’

Petro actually looked regretful. ‘Your mother wanted it. *I* didn’t. I said I agreed, to help her. She died, peacefully; I did not. Can’t you see – I was trying to be kind.’ She looked away. ‘I did love her, in my way, and she died in my arms ...’

Mela tried to take that in. *She must answer for this. Though not today.*

Her father seemed to think the same way. ‘If we get through this, there will be a reckoning, Bel Petro. *After* we have saved the Tomb of Perseus. But why are you here at all? You are a Starrist! To you, the faith of Perseus is sacrilegious, illegal nonsense. Is it not?’

Bel sighed. ‘That is only a probability. I can’t *know* that. I am a rational person. It is *possible* that there is some truth in the Perseus legend. So, you see, it may be *possible* that there is a way for me to survive beyond the last days of the world.’ Bel glanced down at the people of the city, her city. ‘Digging holes in parks, scratching at spindly smartcrop. I figured there had to be a better way to spend my remaining time than *that*. When I was in business, I played the odds and usually won. You know that; you saw me at work. And then Tabor made his theft – it was quite a scandal, even in these times. And that gave me an idea.

‘Now I made a choice, at least. Better to take the *slimmest* chance of eternal life with Perseus than throw myself into a hole in the ground.’

Tenn grunted, cynical. ‘So in the end you made just the same brutal calculation as Tabor. Better *you* steal Perseus’s magical powers than my rogue son? Is that the idea? Just in case there’s something in it?’

‘Yes, frankly,’ she said with defiance. ‘And besides, your son has to be stopped. If he has acquired relics of Perseus, if they have any kind of – potency – he could do untold harm.’

Mela snorted. ‘Now you’re lying. You don’t care about stopping Tabor for the good of the city. You thought there was some kind of profit to be made, or credit to be had. Or even a little more life to be lived.’

Bel ignored that. ‘The door to the silver tower was always locked, guarded. And if not for the chaos of these last days, no doubt it would be guarded still.’ She held up a bit of shaped metal. ‘And I would never have been able to get hold of the key. Don’t ask—’

Vitae stepped forward, agonised hope obvious in his creased face. *‘Is it here? The Tomb? And what specifically does Tabor plan to do?’*

*‘Well,’ Mela said, ‘let’s find out.’*

She held out her hand for the key; reluctantly Bel handed it over.

Mela put the key into an obvious slot beside the handle of the tower’s mesh gate. The key turned easily. She held the handle, preparing to turn it.

Hesitated. Wondering what she would find. A tomb? The ghost of Perseus, drifting in the air? Her own brother, with companions perhaps, glorying in destruction and the ruination of his parents’ hopes?

*Oh, just do it, Mela.*

She turned the handle, opened the door, pulled it back.

She faced a short passageway, a solid door at the end.

Fighting her own nervousness, she walked forward, reached the second door. The same key unlocked this second door. An identical handle to turn.

She opened the second door.

And felt a gust of wind in her face, the light of day in her eyes.

She was outdoors, suddenly. She was standing in a doorway set high in a smooth wall surface, looking out at a lake, or even a sea, glimmering with the reflected grandeur of mountains rising from an island in the middle distance.

Peri stood beside her. *‘Now what?’*

The doorway, set in what was evidently an outer city wall, gave onto a kind of rocky balcony that stood over the sea waters – too high to be flooded, Mela supposed. The others followed Peri cautiously: Mela with her father, then Vitae, with Bel Petro last of all.

Bel clung to the doorway, peering out. Her jacket flapped in the breeze. The clear light of day, after what now seemed the relative gloom of the city and the tunnels surrounding it, made her look older, Mela thought, perhaps unkindly. But here she was, on the brink of a precipice, clinging to the doorway so hard her fingers, her knuckles, were white.

‘What is this?’ Bel asked. ‘I was expecting another chamber. A grand sepulchre for Perseus, perhaps. Not this ... *sea*.’ She peered out again.

Vitae approached the door himself – cautiously. Mela kept an eye on him even so.

He said, ‘I think I had been expecting something of the sort too. That we would find the Tomb in the city at least, a war trophy appropriate to a city which presents itself as the axis of the whole conquered world.’

Mela said darkly, ‘Maybe it was in such a place, until my brother took it.’

‘Hmm. Well, we have further to go, it seems. And beyond the city.’ He leaned a little further out, so that the breeze made his ragged green robe flap.

‘Careful, Perseid,’ said Tenn. ‘We don’t want to lose you.’

‘Thank you for your concern. But this is fascinating. Nobody would see this in normal times, I suppose, save the highest imperials and their guards and retinues ... This must be what is known as the Inner Sea, obviously. The Dam’s creation, water trapped over centuries of rainfall, rain from clouds pouring in from Perimeter to Heartland and dumping their water

*here*. The Dam's purpose, indeed, was to create a great reservoir which controls, through culverts, the rivers that shape our geography ...'

'The city has been built into the Dam itself,' Mela said, working it out. 'Like a great hollow. We entered through the Dam's outer wall, we have travelled to the far side of the city, and here we are looking out of the Dam's inner wall. Ten kilometres closer to the centre of the world, yes? And this sea—'

'As Vitae said, they call it the Inner Sea,' said her father. 'Not really a sea at all, but ...'

Still peering out of the door and past him, Mela pointed. 'I'll tell you what else I see. Those mountains.'

'The Heartlands,' her father said. 'A range tens of kilometres across, straddling the centre of this Earth, and containing its highest point. I've spent so much of my time in Sirius, but I've never seen this before, save from afar, from hundreds of kilometres away.'

Vitae stroked his chin. 'Thus the Empire controls the world, and controls what we see of the world.'

'I'll tell you what *I* see,' said Peri, pointing at the water. 'The central land mass, with the mountains, has – a spur. You can see it's not far from the inner Dam surface, just here. And look there – a bridge to the island.'

They crowded around in the doorway.

Taking great care not to jostle anybody, Mela took a step forward to see where she pointed. Peri was right. A narrow balcony beyond the door itself, and a path beyond the balcony that followed a curving ridge descending smoothly towards the lake shore.

And, at the end of the path, there was indeed a bridge. A simple structure, a footpath. Dead straight, it led directly across the sea, to what looked like a steep shore – and beyond, that central mountainous outcrop.

The bridge had to be half a kilometre long or more, and had no rails or barriers. It seemed too narrow for vehicles. 'A horse might make it,' Mela mused.

Tenn was staring. 'Certainly it looks safe enough to walk across. But I see no sign of supports. Safe, but alarming.'

Vitae smiled tiredly. 'Another conceptually dazzling gift of the builders of the world.'



Peri nodded. ‘And look what’s at the far side, if we do make it.’ She pointed.

Mela saw now. On the island a small building was set back a few paces from the stony beach, a few metres above the water. Just stone blocks and smartwood panels, it seemed, weathered, worn – shabby against the background of towering peaks, the contained sea – but it was clearly recently built. And clearly where they were meant to go.

‘A chapel?’ Peri mused. ‘Maybe nothing more than a shelter ... *That* doesn’t date back to the building of the world. *We* could build it.’

Mela’s father was at her side. He seemed tense with excitement. ‘Now *that* is where the bones of a traveller would lie. Not in some palace.’

She stared at him. ‘You think we might find the coffin – we might find *Perseus* – there?’

Peri snorted. ‘Not exactly a subtle hiding place.’

Tenn shrugged. ‘I suspect very few Sirians go beyond the walls of their city, in their whole lives. Why would they? And why come to this lake? There’s nobody to conquer or tax here. The tomb may well be hidden in the open air.’

‘It’s plausible, then,’ Bel said. ‘It was stolen somehow, stashed out here ...’

Vitae said, ‘And remember, this is a unique location. The Substrate itself is uplifted here, under these Heartland Mountains. So the overlying layers of stone and earth are thin. Perhaps the Substrate is somehow more – *engaged* – with the world here. Maybe whoever brought the sepulchre here might have been guided by, by something—’

‘Something outside their own consciousness,’ Tenn mused. ‘An instinct bedded in the Substrate, a deeper wisdom ...’

Bel pursed her lips. She was a caricature of scepticism, Mela thought. ‘But we believe, do we not, that the sarcophagus, if it exists at all, would have been hidden within the city before Tabor stole it. I doubt very much that your thug of a son would have been guided by anything other than his own greed. I doubt that that hut is anything more than a Guard shelter, maybe recently built, and irregularly occupied whenever the imperial authorities have thought it necessary – to stop any banditry coming in through this door in the Dam wall, perhaps. Tabor probably knew about it —’

‘And when, if, he stole the sarcophagus,’ Mela said, ‘he thought it was a safe place to hide. You might be right.’

‘Well,’ Tenn said, ‘that’s a long chain of guesses, of perhapses and ifs. But we’ve come this far. We’ve got to *see*.’

‘Agreed,’ said Peri. ‘But we should take care.’ She pushed her way through and pointed at the bridge footpath. ‘See that? Just a few paces out? Something on the track ...’

Now she pointed it out, it was obvious to Mela. ‘It’s not that your eyes are sharper, I don’t think. But you are better at *seeing*.’

‘An unsung benefit of a lifetime as a Guard.’

‘I see it now,’ murmured Tenn, peering out. ‘Just a scrap of cloth – black, is it?’

‘I think it’s a Guard’s glove,’ Peri said. ‘Armoured to protect the hand in combat. Worn by officers mostly. I take it we’re going to cross this bridge, yes? But now we know for sure that *somebody* has gone ahead of us. Whoever dropped that glove may still be there, in that chapel. Probably military, given the glove.’

Mela grunted. ‘Would Tabor have had such a glove?’

‘Standard kit. I think it would be best if I led the way.’

Nobody argued.

But Bel seemed to hesitate again. ‘Maybe I shouldn’t go any further.’

Peri said, ‘There’s no reason to be afraid—’

‘It’s not that. All this – it’s not about me, is it?’ She looked at Tenn with what looked like real regret. ‘I’ve done so much to pull your family apart. I know that. I should let you go.’

‘No. All that’s over now. *She*’s gone. And here we are, together, however it came to be. Come. Let us complete this last journey together.’

‘In her memory,’ Mela said, wondering what she was feeling herself.

Bel hesitated, then nodded gravely.

Peri briskly organised them for the crossing.

As she had suggested, Peri herself went first.

Then Tenn, then old Vitae, then Bel. Mela at the back. Spreading out the strength in the party, Mela thought. Relative strength anyhow.

And, as they set off, she saw the wisdom of Peri going first, watching her footing the whole way, testing the bridge surface for loose stones, any

fractures, any awkward unevenness. She murmured her findings back to Tenn, who pointed out hazards to Vitae and Bel in turn.

Bel seemed to have the most problems. She seemed barely able to take a step across this bridge without staring down at her feet, at every pace glancing fearfully at the drop to either side. Mela was glad she was behind her – braced to help if she stumbled or fell.

But in fact the bridge wasn't as tricky to cross as it had looked. The central path was quite wide – it had looked razor-sharp from the doorway – and felt solid, even if it seemed to be almost floating a few paces above the surface of the water with no visible support. A relatively minor miracle, Mela thought.

When she reached the black glove, Peri picked it up, waved it so the others could see, stuffed it in a pocket.

Soon Mela found her attention drawn to the unprepossessing hut that sat on the peak ahead. Unprepossessing maybe, but it was the only visible structure on this, the first accessible landing in the Heartland Mountains. A good place for a look-out in case of trouble from the city. And a good place to deal with that trouble, if it had gone before them.

She felt her heart beat faster as they approached.

Peri reached the far side at last.

Peri helped Tenna, Vitae, Bel complete the last steep scramble up to the small plateau on which the hut stood. Mela thought she could make it by herself, but, safety-first, she accepted Peri's outstretched hand.

Then Peri stood back. 'Take a breath,' she ordered. 'That was quite an ordeal, and you all did well.'

'That's patronising,' Tenn said, panting hard, 'but kindly meant, and accurate. And it's a bleak thought but at least we won't have to do it again.' He glanced around. 'I mean, nobody's intending to go back, are they? However today turns out. Thanks to Peri, we have a little food, water ...'

Bel barked laughter. 'Enough to survive until the final apocalypse? You always were a cheery soul, Tenn, my friend. I can see why Salja needed, well, an outlet.'

Tenn said stiffly, 'We all have to find our own places in the world. I'm well aware of the drabness of the work of a Magistrate, but the quiet glow of *helping* people—'

‘She always dreamed, you know,’ Bel said. ‘Her personality was too *big* for a place like Procyon. She always loved you. But ... I suppose she lost her way.’

Tenn sighed. ‘Too late now even to talk about it all. I wonder if all families are like ours.’

And a new voice spoke, coming from above.

‘By the green balls of Perseus, no, I hope all families are *not* like ours. What hell that would be.’

Ahead of Mela, Tenn stopped dead, straightened up.

And Mela saw *him*. Standing on the peak, arms folded.

‘You do remember me, then.’

Tabor.

Mela pushed forward.

Tabor stood in the doorway of the little structure, holding a mace in one hand and a bottle in the other. The mace was basically a crude club but elaborately adorned.

Peri murmured that this was the signature weapon of the Household Guard, the Empire's elite troops. 'Probably stolen.'

They stood there. Brother and sister, staring at each other. They had known, or at least had suspected, he was here.

He wore one glove, Mela noticed in that first moment. He had the bottle in his bare hand. She remembered the lost glove on the bridge.

He was stockier than Mela remembered. A livid scar crossed his forehead, making him look even more brutal than before. His face was now a permanent snarl, it seemed. Still it was a visceral shock for Mela to see him.

And for her father. Tenn lurched forward, instinctively grabbing for his son's arms. 'Oh, Tabor. Oh, my son—'

Tabor twisted away from his grasp, and stepped back, laughing.

Peri was the next to move. She had her own mace, clipped to her belt. She dropped this now. And she let the backpack she carried slip from her shoulders. Then she held up her empty hands, and took slow steps towards the hut.

'Tabor, you can see this is all of us,' she said calmly. 'No ambush, no Guards, no raiding party. Just your family, and their friends—'

'Huh. Well, I'm here ahead of you, aren't I? I listened to my mother and her lover babbling about the tomb, and where it might have got to, and the Silver Tower as the place to look—'

Bel glared. 'You spied on us?'

‘Well, said I, a coffin full of treasures? I’ll have some of that – if it’s not all made-up lies to pacify fools.’

Mela thought she wouldn’t have recognised his voice. It was deep, coarse, harsh, as if used to shouting. His face seemed bloated, the skin dark and grimy under rough shaving. There was nothing left of the boy she had known, she thought. She felt a lingering trace of guilt at how things had turned out for him – she *was* his sister – which quickly evaporated. He had made his own choices, from the beginning.

Now Vitae took a step forward, hands in the air, an expression of longing on his face. ‘Is it here? I can’t wait any longer. Is *it* here? Oh, I have held the faith all my life. But faith is one thing, to *see* with one’s own eyes is quite another. Please, my child—’

Tenn touched his shoulder. ‘Wait, Vitae. We’re nearly there. Be patient.’

They stayed still for a moment, the six of them, a frozen tableau among the geological grandeur of the place.

Peri was evidently still trying to assess the situation. She kept watching Tabor, kept watching the hut.

‘Tabor, we aren’t here for trouble. We aren’t here to apprehend you. It’s too late for that.’ She forced a smile that wasn’t returned. ‘*Are there others here?* I know you had quite a following in the grubbier quarters of Sirius.’

He sneered. ‘You know that, do you? Means nothing now. What are you going to do, charge me with sedition, conspiracy?’

‘If there are others here—’

‘I’m alone,’ he snapped. ‘Oh, there were others. After the loot, as I was. They cleared off when we couldn’t get the box open, and the Tide closed in.’

*What box?* Mela wondered.

‘They wanted to see their families again, boo hoo.’ He glanced down, over the bridge, the sweep of the mountainside. ‘I brained the last one. One swipe of the mace as she was leaving, all in tears. Watched her fall all the way down into the water, like a little doll. Boo hoo.’

Tenn recoiled, as if punched himself. ‘By Perseus – why would you do such a thing? You are my son, our son—’

‘Your son, the monster? That’s how you always saw me, wasn’t it? Compared to *those* two, the little angels. *I did it because I could.* I did it because I wanted to know what it felt like. What else is there to do? The

world is ending! A few more days and we will all be gone. All of it. All of us. There's no point in building anything. There's no point in *saving* anything. No point in writing stuff down, all your scribble, scribble, scribble, *Father.*' He snarled the word. 'None of it matters. It never has. I've always known it would end in nothingness. That the world would die before I did. I never lied to myself about it, as *you* always did, Father. Why not kill? If it gives me a buzz. It's a game, that's all. And all I took is a few days of a life doomed to end anyhow.'

Tenn seemed almost tearful now. 'But you took something from *them*. The chance to be with family, friends, in loved places. Whether or not you believe in the creed of the Perseid – that all will be joined with him after death – you robbed them of that consolation. As, it seems, you rob your family.'

He sneered. '*My family*. You? Just as my companions fled to go to their families, my family has to come here. And for what? Not for *me*. For Perseus in his damn box. Are you going to lie about that?'

Tenn shook his grey head, sounding utterly weary. 'But do you have it? Oh, do you have it?' He seemed barely able to stand.

Mela saw how Peri gently went to him, put an arm around his shoulders. He seemed almost to be shrinking, Mela thought, shrivelling, as the last of the energy that had brought him so far drained out, the longing, the dream of Perseus, even as he faced this horror of a son.

Mela stepped forward and glared at Tabor.

'Why don't you get this over with? Whatever you're planning. You know the most irritating thing about you, when we were kids, Tabor? Not your stupidity, not your violence. Not your self-serving lies. Your *words*. You think you are active, strong, resolute. Clever, even. No. You are a flapping mouth and a fist.' She took another step forward now. 'Come on. If you've got something to show us, show it. If you're planning some cruel stunt, get it over with. You bore me now as you bored me then—'

He took one, two paces towards her, his hand on his mace. His face twisted in rage. Trembling. Spittle on his lips.

Mela was well aware of his capacity for violence, but she found she wasn't afraid. Not any more. She just stood there. 'Poor little Tabor.'

The moment passed.

He turned on his heel and stalked back to the shelter.

For a time they stood on the path. Absorbing the shock, perhaps, Mela thought.

Tenn looked at Mela in horror. ‘What have we done? What have I raised?’

‘He’s a lost little boy,’ Vitae said.

Bel snorted. ‘No. He’s a grown man. At what age should one stop blaming one’s parents?’

Old Vitae began labouring up the slight slope to the hut, Peri solicitous at his side. Vitae said, ‘Well, if this confused boy-man *has* acquired the most precious relic in all this world – in all the *worlds* – if he has taken this for his own gain, or merely to torment his family, that crime can only be his own responsibility. You should forgive yourselves. But we must deal with this situation.’

Even more slowly, Mela followed with her father and Bel. Peri stood aside, watching carefully.

Tabor backed up to the door of the hut, his eyes on Peri and Mela.

Mela thought she heard thunder, a distant rumble. A storm perhaps – the weather had grown ever more turbulent in the last weeks and months. Or perhaps it was the collapse of another chunk of the world. The death of more helpless folk. She tried to concentrate on the here and now, the peril.

And, she saw, as Vitae reached the hut, as soon as he opened the door, a brilliant green light emanated from it.

Vitae gasped, reaching out, and shuffled forward into the hut.



Once they were all inside the hut, Mela found it seemed more spacious than it had looked from outside. The only light was a leakage of daylight from the open door – and that eerie green glow from within.

The glow came from an object on the floor, not far from the doorway. A box, long and narrow. A sarcophagus? It looked like it. Scuffed and dirty, yet that rich green glow was more than visible.

Vitae would have rushed forward, eager, but Mela held him back.

Peri stepped back, taking a position against a wall, near the door. A soldier's caution.

For now, Tabor just stood in a corner, watching them coldly.

Peri caught Mela's eye, nodded. *Watch out for him.*

Mela stepped back too, and stood against the opposite wall, taking in the scene.

Her eyes were adapting quickly to the dark.

That sarcophagus – whatever – stood on a kind of trestle. It looked carelessly placed, she saw now, as if just dumped here. And, when she looked past the sarcophagus, which itself was the only source of light within the hut, she saw stuff piled against the walls – what looked like food packs, maybe military rations, heaped-up blankets that might be rough bedding.

There was a stink of urine.

And further back, just behind the coffin on its low support, a darker area in the floor. Nearly circular.

She caught Peri's eye. Peri had seen this too. Peri mouthed the word, *Deepshaft.*

Tabor, meanwhile, started to strut around, kicking his gear out of the way – rummaging until he found another bottle, pulled out the stopper with his

teeth.

Now Vitae, calming, flanked by Bel and Tenn, approached the green box on its pedestal.

Tabor did nothing to stop them.

Bel seemed utterly terrified. She watched, hands over her mouth.

And Tenn reached out towards the box.

Tabor laughed. 'Touch it if you want. Stroke it. Kiss it. *Lick* it. It's just a box ...'

Without warning he stepped forward and shoved Bel in the back, making her stumble towards the coffin.

That was too much for Bel. She cringed back, eyes wild, and her scream was loud inside the little hut. 'No. No! This is monstrous – all wrong – evil, evil—'

She turned, pushed past an ineffectual Tenn, and ran from the hut.

Peri and Mela followed her to the door and then watched, shocked and distressed, as she stumbled away.

Peri said, 'She's lost it. Maybe it's surprising we aren't *all* going crazy. It is the end of the world—'

'One of us should go after her.' Mela looked at Bel, who was now staggering towards the narrow bridge. 'She'll kill herself.'

Peri held her arm. 'So will you, if you go after her. Come. Your duty is here.'

So Mela stayed where she was.

Peri did go to the door, calling Bel back, but she didn't respond. They watched as somehow the woman staggered across the bridge, fell only when she reached the mainland – got up, and limped back towards the blank exterior face of the city, the tower they had come from.

Mela took a deep breath. Peri returned to the hut.

Tabor grinned. 'One less mouth to feed, eh? Of course she could have jumped down the deepshaft here and saved herself a lot of running about. What about you, little sister? Want to use it now, do you? Only a few days of life left for you. Save you a walk back to the city, won't it?'

Mela glared at her brother, her hatred for him becoming caustic, any lingering guilt or sympathy leaching away. 'I know you. I *knew* you ... you're planning something.' She looked around, appraising. 'For instance, why have you put the sarcophagus so close to that deepshaft?'

But he just looked away and swigged from his bottle.

Vitae didn't seem even to have noticed Bel's breakout. He was walking around the coffin, reaching out to its glimmering green surface – not quite having the nerve to touch it, it seemed. 'But it's just as the legends describe – the precision of its manufacture ... I wish I had a measure!

'We know this world of ours is very, very old. Some accounts speak of thousands of years, some of *millions* ... No memory could survive such enormous deserts of time. Yet the existence of the Sarcophagus of Perseus – or his boat in the sky, or his tomb – runs through such accounts of the past as we have, such legends, like a glowing thread.'

He told them the story of how, soon after this world had been *made* – one of a thousand siblings in the Thousand Earths – the coffin-boat of Perseus himself first descended from the sky. And Perseus emerged, the sage, the redeemer, the saviour.

Many legends adhered to him, many accounts of his travels, words, and miracle-making, accounts mostly fantastical if not contradictory as far as Mela could tell. In a way, she suspected that it was enough that he came at all, that he had *been* here, on this world. Connecting this Earth to the sky, and all the companion worlds ... He ascended once more to the sky, but returned many times over.

Until one final return, from which there was no ascension.

'Some say he *fell* from the sky this time. The coffin landed hard, and, allegedly, gouged a deep valley in the face of the world. Others say his coffin was damaged, deliberately, by those who would capture Perseus, use his powers – even slay him. Perhaps Starrists, who were jealous of his monopoly of the sky. The coffin-ship could no longer fly. But the heart of the coffin itself, and its precious contents, had not been harmed.

'Presumably. None could open this solid-looking box to see. Adherents of the cult of Perseus cared for it – kept it safe – even built a series of chapels around it.

'Finally, however, the Starrist cultists who would become the core of our present imperial regime took power – and took the coffin for themselves, to demonstrate their power, their hegemony, their dominance over the Perseids. It is said that they tried to destroy the coffin—'

'You can't smash *that* thing,' Tabor said, taking a lazy kick at the coffin. 'But you can hide it, or lose it – and so it was taken to some desolate corner

of the Provinces, and good riddance.’

‘Yet it was saved again,’ Vitae said. ‘And I heard a version of *this* story from Farrell the Perimeter Warden, your friend, Mela ... Yes, the coffin had been buried under a town in the old Provinces. When the Perimeter came, as the Tide broke up the land where it had been hidden, the coffin was exposed – seen, and recognised for what it was. It was saved by Perseid sympathisers—’

Mela was surprised. ‘And brought here? Back to the heart of the Starrist Empire?’

Vitae shrugged. ‘The Perseid factions – and there are some, even in the imperial court – wanted to save the sarcophagus for itself, for worship, veneration. But the factions closer to the then-Empress wanted to keep it as a symbol of her ancestors’ conquest, her own authority. To take Perseus himself!

‘And some say the Empress, in her latter days, ordered her philosophers to find ways to *use* the coffin to preserve her world, her crumbling empire – even her royal self, if all else failed. After all, some legends have it that at this moment, the end of the Earth, Perseus will rise again ...’ He seemed eager, excited now. ‘That centuries-old purpose was evidently lost in the chaos of the final months and days. Our latest Empress assassinated, leaving her infant child to reign over us in these last years. The coffin itself was hidden away, then stolen. But now, here it is – now is the end time—’

‘And,’ Tabor said, ‘I’ve had enough of this joke.’

Tabor pushed himself away from the wall.

And time seemed to slow, for Mela.

Tabor took one, two lazy strides towards the coffin. Passed near the deepshaft. Making for one of the low trestles on which the coffin stood.

He drew back his leg. Took aim, it seemed, his tongue sticking out of his mouth. Still he hesitated, evidently making sure they were all watching.

And Mela saw, in a flash, what he intended to do. Why he had set up the coffin in just this way, so close to a deepshaft. All he had to do was kick away that lower trestle, and the coffin, tilting, would slide into the hole, the deepshaft. Lost for ever.

He was grinning now, lining up the kick.

Tenn saw it and screamed. ‘My son! No ...!’

‘Three. Two—’

Mela didn’t stop to think.

She leapt forward.

To get to the coffin she had to push poor Vitae out of the way. He slumped against a wall, crying out. And then she lowered her head and just lunged at her brother, driving her skull into his stomach.

His muscles were hard, his padded clothing tough. It felt as if she had run head-first into a wall, and the rough texture of his tunic scraped her scalp.

But she had the momentum, and he hadn’t been expecting the assault. He fell back, slamming against the wall, and she tumbled against him, losing her balance, spent. For an instant she was on top of him, and for that instant she tasted triumph. *Pay attention, Tabor. You never did think anything through, did you?*

But it lasted only an instant. With a shove from one hand at her upper chest, he threw her off, then with two hands on her shoulders hurled her back against the wall. That alone knocked the wind out of her. And she was helpless as he got hold of her tunic, a big bunched-up handful, and lifted her up, bodily, *one-handed*. She felt the fabric tight under her arms, behind her neck.

She saw that the deepshaft hole was directly behind him. An outstretched arm away. He could just drop her into the shaft. End of her story.

But he hadn’t finished punishing her yet. Having held her high, he slammed her against the wall again, driving the breath out of her once more. Then, still supporting her weight with that one bare hand, he balled a fist with the other, the fist in its armoured glove. He raised that fist before her face, drew it back. The punch would drive the bones of her face back into her skull. Probably kill her instantly. *No ...*

She balled her own right fist and drove it *up*. Caught him under the jaw. She felt upper and lower jaw snap together.

Blood spurted. Perhaps he had bitten his tongue. She had got him without warning. He was off balance. His grip loosened.

She still had her back against the wall. He was still holding her tunic with one hand, so she grabbed his other arm for leverage. She pushed herself back against the wall, *jumped*, got her legs up, and slammed her feet into his midriff. It was like kicking the wall itself. But she did enough to

knock him back. She kicked again. He let go, dropped her, staggered back. She fell back against the wall and slid down to the floor, landing on a heap of filthy clothes.

He was still standing, she saw, but stumbling back towards the deepshaft. She struggled to her feet. *One more, Mela.*

With a roar, crouching, she ran at him, and drove her head into his upper chest.

Again it *hurt*, the stiffened uniform, the muscles beneath as hard as rock, sending shocks of pain through her skull, her neck muscles. It probably barely hurt *him*.

But he was caught off balance. Staggering, he took one step back. And then a second.

But there was no second step behind him.

His right leg dipped into the deepshaft hole. He stumbled, that leg falling into the air, the left crumpling under him. He landed hard, his left knee on the lip of the shaft. He roared out his pain.

But still he wasn't done. He bunched his fists, pressed them against the floor, and began to lever himself out of the shaft.

Mela didn't let herself hesitate. Back on her feet again. Ran at him, timing the steps.

One good kick to the forehead. This time she cried out; it *hurt*, a pain transmitted the length of her leg.

But it pushed him back that little bit more. His left foot lost its traction, and his left leg slipped into the hole behind him. His upper body folded down onto the floor. Now he only had one arm out of the shaft, and he scrabbled, scratched at the floor. He looked around, frantic. He called, 'Father!'

Mela heard Tenn call back, in desperation. She dared not look round; she hoped Peri was holding her father back as Tabor slipped again. Slipped so his upper body dropped into the shaft. He still had one arm out of the hole, but he slipped back further. Then a few more seconds as the fingers of one hand still clung to the lip of the shaft. And that last hold gave.

He fell away.

He wailed. He roared his defiance.

It sounded as if he fell a vast distance, before he was lost.

And Tenn, screaming, fell on Mela. ‘What have you done, oh, what have you done? You vicious – evil—’ The words dissolved, but the punches started to come.

Mela had no defence left. She curled into a ball on the floor.

The blows kept falling until Vitae and Peri, together, dragged Tenn away.

It took most of the rest of that twentieth day, and the next, before they were done.

Until the aftermath of the violence was spent. Until the rawest of emotions receded to a dull ache.

Mela and Tenn sat apart, as far apart as they could in the squalid little hut.

Vitae, exhausted, slept for hours.

Peri, meanwhile, was the most practical.

When Mela began to take notice of her surroundings once again, she found Peri had tidied up the hut. That included piling up blankets and other gear around the deepshaft, to try to keep anybody else from falling in. And she had sorted out what supplies there were in here. Aside from food and water there were blankets, food, medical aids like bandages and salves – stuff that she had brought on her person as part of her standard kit, as had Tabor and his companions. They had all been trained Household Guards; even Tabor had never gone anywhere without being well equipped.

And so, on the nineteenth day before the end, Peri, seeing Mela stir, was able to announce that there was more than enough food for the five of them for at least thirty days. She made jokes about being punished by some Senior Logistics Auxiliary for wasting rations.

Mela had slept only a little. But, twenty-four hours after Tabor's fall, she found she was ready to live again. To think again. She ate a little food, sipped some water.

She carefully approached her father, for the first time since the climactic confrontation. He slept on.

She crept out of the hut.



The daylight seemed dazzling.

She felt oddly nervous to be walking away from the hut, her refuge. But Vitae was already out, having slowly stirred from his own long sleep.

‘Peri’s done some exploring,’ he said in a matter-of-fact way.

As if she hadn’t killed her brother a day ago.

‘She found a few patches of smartcrop growing a short walk down the hillside, away from the hut. Even a trickle of fresh water, which baffled her. There, can you see it? A stream, this high up? But the land formation is unusual here. As you know. The Heartland Mountains rest on a kind of upward bulge in the Substrate itself. So there is a smaller volume of earth and rock here to trap groundwater, hence the run-off. Mind you, you have to balance that against there being less rainfall at this altitude ...’

Mela could barely follow his words. Her head felt as if it were full of glue. She knew she should admire the consistency of his curiosity and intellect, even now, nineteen days before the end of the world. He was still thinking, analysing. While she seemed barely able to speak, or think.

She washed her face with fresh, cold lake water. Sat in the open a little. Let Vitae speak with her some more, of the intriguing details of the end of the world.

Then she went back to her father.

Tenn still wasn’t speaking either. Not to Mela, not to anybody. But his anger and shock seemed spent.

Mela remained with him most of the rest of that nineteenth day. What else could she do? What else *should* she do but be with her father, and the sarcophagus of Perseus himself?

The thought of that seemed absurd, though. Whatever that green box was, what did it matter compared to the death of her mother and brother, the death of her sister, so long ago? What did the end of her world matter beside that?

When he allowed it, she held her father’s hand.

They sat like that for hours.

The next day, the eighteenth, sitting in the hut, Tenn did manage to speak a little to her, his voice a hoarse whisper.

‘You did what you had to do. He would have destroyed the sarcophagus. Whatever it actually is ... He would probably have killed us all. *My son,*

Tabor. He would have done that.'

'You saw how he was,' Mela murmured.

'I saw. I saw. You saved us all.' He stroked her hair. 'But I have lost a son. As once I lost a daughter, and a wife. What a family we are—'

They heard a sound like thunder. The ground seemed to shudder.

Vitae pushed his head through the door and, gently, invited them to come see.

They stirred, pulled on jackets, left the hut.

For Tenn it was the first time he had been outdoors since the death of his son. He seemed to be trembling, his gait uncertain, half-blinded by the daylight. Mela walked with him, holding his hand firmly.

They walked back the way they had originally come here, to the attachment to the bridge to Sirius. The Inner Sea was turbulent now, Mela realised, with waves rippling across its surface.

And, glancing further south, following Vitae's pointing finger, Mela saw what looked like white clouds rising, apparently coming from behind the Dam, the complex bulk of Sirius City built into it.

Spray or steam from some vent, perhaps, Mela suggested.

It was no steam vent, Peri said.

Peri had been doing her own exploring. Now she squinted, stared, shielded her eyes. 'I climbed a little higher to see. You understand what that is? *It's the Dam itself*. Even that great monument couldn't resist the advance of the Perimeter. It's collapsing.'

Vitae nodded. 'This was predicted for this very day. Right on cue. The mist we see isn't steam, but water hurled up by that huge collapse.'

Mela tried to imagine it. 'All that water, released all at once, over those Provinces. A flood, finally, just as the Imperials threatened when we argued over food supplies—'

Vitae touched her hand. 'No, it's not like that. Not any more. Think it through, Mela. The Provinces can't be flooded, not now. Because *the Provinces no longer exist*. The Perimeter has already washed over them, before breaching the structure of the Dam itself. And, yes, the water must be gushing out now, over the shining Tide – hence the steam clouds you can see – but it won't be flooding anywhere, it's not killing anybody, nobody is

drowning ... South of the Dam, *nothing exists now*, not any more, nothing but the immaterial Tide.'

Peri nodded. 'So how far are we from the Dam's outer face here?'

'About ten kilometres,' Vitae said.

'And the city, Sirius, is contained in the structure of the Dam. Remember, Mela? That's how we got in, through the transport system working inside the Dam itself.' She closed her eyes, clearly trying to imagine it. 'A system that was built centuries ago. Gone, just like that. And soon, I guess, the Perimeter will be chewing its way through the structure of the Dam – through the city.'

Mela tried to imagine how it would be when the Perimeter broke through into that enclosed city itself – the people swarming, fleeing, like ants. She asked, 'How long—'

'Days,' Vitae said calmly. 'Before the city will be gone entirely. The ruin of the Dam. Maybe eight more days. So my calculations indicate, based on historical data collected by the Perimeter Wardens. We have never been able to model the advance of the Perimeter reliably, for we do not understand it ... And now that the process is so *intense*, so short range, such estimates must be tentative. There could be stalls or surges—'

Mela touched his hand. *That's enough.*

Peri was quiet.

She knew the city well. She must have friends there. Peri asked Vitae if it was possible that even now some people might try to escape from the city – even coming the way they had, over the bridge. Vitae said, yes, it was possible.

Mela thought he was being kind. Lying.

Still, for the next few days, Peri spent hours sitting at the head of the bridge, with ropes, blankets, water, even packets of food. Just in case a few refugees made it.

None came.

Meanwhile Vitae prayed over the sarcophagus of Perseus – if that was what it was; and Mela had heard her father mutter bitterly that it could after all be just some gaudy fake, put together by a pretender to the throne of empire. Mostly, though, Tenn sat close to Vitae for long hours – if only, evidently, to mourn all those he had lost.

Mela sat with Peri, mostly just as quietly, probing at her feelings over killing her brother in order to save all their lives – including her father’s, her own. Wondering what she was *supposed* to feel. Peri mostly kept her thoughts to herself.

And, in time, Vitae pointed to the level of the water in the Inner Sea. *It was going down*, steadily, slowly for now, but visibly if you watched it recede down the flanks of this rocky summit. Draining away into the Tide, through the cracks in the Dam, maybe even the bedrock beneath. Another pointless marvel.

Eight days after the death of Tabor, events seemed to accelerate.

By now the world was full of sound, night and day, sometimes like the crackling of some immense fire, sometimes like thunder – but coming from all around their refuge as the Perimeter closed in on the axis of the world. And that night, for the first time, Mela thought she could *see* the glimmer of the Tide itself, its pearl light in the sky, with her own eyes.

Vitae said they could not rely on surviving the remaining twelve days of the Perimeter Wardens’ best model of the final collapse. ‘The Tide must be advancing at around two kilometres a *day* now. But, remember, there could be stalls and surges ...’

Tenn smiled gently. ‘Does it really matter?’

‘It seems to,’ Peri admitted. ‘To me. I am clinging to these last days and hours like a greedy Guard shaking the last drops of beer out of the flask. But the harder I cling the faster it all goes.’

Mela was surprised by this admission from the tough Peri. She reached over, held her hand.

Astonishingly, Mela managed to sleep through another night.

When she finally woke, to another thunderous roar, she rolled out of bed.

Tenn was sleeping, apparently soundly. The others weren’t here.

She hastily used the toilet kit left behind by Tabor and his comrades, pulled on some clothes, and crept barefoot out of the hut without disturbing her father.

When she emerged, she found Peri and Vitae sitting side by side, looking back the way they had walked here, along the bridge – back to where the ancient city, the Dam, had stood even days before.

Now the bridge was gone, fallen. The inland sea was drained away now the Dam was gone, and the revealed seabed was glistening and streaked with weed.

When she looked the other way, inland of this central mountainous continent, she saw rock dust rising in plumes – and heard an avalanche somewhere, a rolling roar as if a giant had emptied a bag of huge pebbles.

And behind it all she saw the shining, unearthly glow of the Tide itself. Visible now even in bright daylight, all around her horizon.

Eleven days to the end of the world.

She sat between her friends, held their hands. They offered her water, food. She sipped some water, but skipped Peri's offer of Guards' field rations, taken from Tabor's pack. She tried to tell herself she was privileged to be here, to be one of the last generation of all, to *see this*. Tried to be proud of all she had done, the people she had tried to save for as long as possible.

But none of it seemed to matter now.

*You don't want to go, do you? You want to live, another hour, another day ... That's why you keep eating, drinking, rather than just throw yourself into the Tide ...*

*But you killed your brother. How are you supposed to live with that?*

'I wish my mother were here,' she said.

Vitae took her hand in his. 'Not long now,' he said, as if that was a comfort. 'The ending was never going to be neat—'

As if in response there was an almighty, deafening crack, coming from somewhere to Mela's left, to the east. They all flinched.

When they looked that way they saw that the rocky seabed, already drained, was itself breaking up now, fragmenting into dark rafts that floated on a lower, revealed sea – a shining sea of Substrate, she saw, just as she had once glimpsed when the Perimeter had still been days' travel away. This was a huge spectacle, the disintegration of a landscape. The revealed light was brilliant. And there was a roar, like a tremendous waterfall.

Vitae had to shout over it. 'It is accelerating! We may not even have hours left. One more surge ...'

Peri leaned towards Mela. 'Do you want to bring your father?'

'I am here.'

Mela turned.

Her father stood just behind her, in the grubby Guard's kit he used for nightclothes. He was barefoot, unshaven.

'Sorry to creep up on you, what with you being distracted by the end of the world and all.' He looked out at the chaotic landscape. 'Actually it wasn't *that* that disturbed me. Believe it or not.'

Mela reached up and took her father's hand. His hair was sleep-mussed. She was so glad to be touching him that everything else became irrelevant, muddled. '*This* didn't wake you? I don't believe it. What, then?'

'The sarcophagus of Perseus,' he said. He looked Vitae in the eye. 'It's opening.'

And, in the hut, John Hackett woke from a dream of home.

With an effort of will, he remembered his name.

He remembered the last thing he had had to eat, before submitting to another long sleep (it had been some kind of toasted bread, a gift from those who had pushed him back into his box). He remembered he had allowed himself time to fall into sleep, ordinary sleep, before the lid closed on him once again.

That was the routine he had established long ago, during his journeys through time in his coffin-ship, beginning in the age of the building of the first set of Thousand Earths. You could pass the interval in a flash: lid closes, lid opens, another hundred million years have passed. Utterly disconcerting. Or, better, you could fill those millions of years with some kind of dream. Or the *illusion* of a dream, the illusion of an illusion ...

A dream of home, this time.

He was far from home now, that was for sure. His last memories? Of returning to his ship, of course, after one of his extravehicular jaunts on one Earth or another. But ...

But this time had been different, he remembered now. The memories slowly surfacing, assembling.

He preferred to let it come naturally. After all he could always light out of here for some other of the Thousand Earths that filled the sky ...

*Ah. No, you won't be doing that any more, buddy.*

At last his subconscious dug out the crucial facts. He might return to his Substrate nap, but he wasn't going anywhere, not from this island world, not of his own volition. Not any more.

Because some tinpot Empress had smashed up his beautiful ship.

*So why not let me lie in my grave, you bastards? What do you want, to use my ribs as a xylophone?*

The hell with that. He gave the remnants of his ship the order to open up. The lid lifted with a creak.

And an odd light washed in over him.

*Odd* – it was like the light of the Substrate, actually, when you glimpsed the core technology laid bare, a silvery, sourceless glow.

He heard a roar in the distance, a sound like thunder, or the waves on an angry ocean, maybe ... yet not quite like either. Even lying there in his box, the noise disturbed him.

And then a shudder, as if the very ground the ship was lying on was restless.

Or *tormented* – the word drifted into his head. He was emerging into a tormented age, then. What the hell was wrong with this world?

Of course, that might be *why* he was emerging just now.

He was lying on his back, he realised, staring up at a ceiling, of some roughly constructed hut – of wood? Some kind of super-advanced smartwood, surely. But there were black stains on that roof, even scorch marks, as if fires had been lit in here. What, had he circled back round to the Neolithic?

And now a face, over him.

He woke further. A sense of his body returned, slowly, slowly. Nobody said it would be an easy ride, old man, as Rava would have told him. He wondered where *she* was now, with his beloved *Perseus*, the first and best beloved ...

He was too groggy to be startled. His senses too muddled to take in what he saw. A man's face – maybe sixty years old? Or older. Careworn.

The face went away.

He napped a while.

He heard footsteps next. He opened his eyes.

A round face, a woman's face this time – strong, he thought. Stern, not young, not old – forty, maybe. Her hair was clipped short, and looked greyed. Older than her face looked. She wore a grimy coverall, which from what he could see was much patched, scarred by burns.

A tough person who had had to do a lot of fighting in her life. And had to bear a load of responsibility, he guessed.



More faces behind her in the dim light, faces like hanging Earths. Another woman, a couple of elderly men.

‘Hello,’ he said, tentatively. His voice sounded like he was emerging from a tomb, which of course he was.

One of the faces in the background crumpled. ‘I knew it. I *knew* he lived ...’ Heart-wrenchingly soft weeping.

Hackett suppressed a sigh. ‘I’ve had that reaction before.’

The nearest woman leaned down again. ‘My name is Mela.’

‘Hi. I—’

‘What is a “xylophone”?’

He was helped out of his green box and laid out on the ground, on a heap of blankets, by Mela, and the other woman, who was perhaps a little younger. The other was called Peri. He repeated the names to remember them; a lousy memory for detail was one trait that had developed down the ages. Maybe his memory was just full. Too many names, too many faces.

Anyhow, *Mela. Peri.*

Peri wore a military-type uniform he recognised as a variant of the couture of the Empire that had captured him – in the process of capturing much of this Earth-island, as far as he could see, a process from which he had in the end been unable to escape. So the Empire endured in some form, then. But maybe not for much longer, given the light show outside this hut.

He wanted to go see what was happening. He tried to stand, unaided. He only felt a little dizzy.

But Peri held him back. ‘No,’ she said sternly. ‘Take it easy. Let us help. You’ve been in that thing for a long time ...’

He wanted to ask, how long? But the words didn’t come.

Mela and Peri helped him stand – well, held him up, really – and walked him over to a low, fold-out chair. Like camping gear. He sat, cautiously, and looked around. He really was in some kind of hut, the floor bare rock, heaps of stuff in the corners. What was this?

Peri handed him some kind of bread. Not toasted. And a cup of some cloudy liquid.

‘Sit. Eat. Drink.’

It tasted like fruit juice, but probably wasn’t.

As he ate and drank, the two others in this hut, older men, just stood back, and stared, helplessly.

One was gaunt, thinner, weak-looking – but with a faint resemblance to Mela. He thought this was the man he had seen on first waking. The other was older but sturdier-looking. He looked like he had once been overweight, but had slimmed down drastically. Or starved. This older man was dressed in a grimy robe, tied at the waist with rope – it looked like a monk’s vestments to Hackett. Grimy, torn, scorched – but the robe was basically the same colour green as his own coffin-ship. The other man wore a robe, too, less monkish but with flashes of green.

Which observation gave Hackett a sinking feeling. He had encountered many reactions to his emergencies from *Perseus*, his ship-coffin, but the most uncomfortable was any kind of god-worship. It always meant trouble – and trouble, he was remembering now, that could be near-terminal.

He studied Mela more closely, in the light. These people were shorter than he was – granted, a small sample – and sturdier, or at least the women, younger, looked that way. But with poor skin tone, even the women looked older than their posture would suggest. They all seemed *wounded*, exhausted, though the woman Peri seemed the fittest. But he could see, by the uncertain light from the noisy world outside, that even her face bore scars ... These people had lived hard lives, then. And their ancestors too, if their stature was typical, enough that you had to be compact and tough to survive.

He remembered the Empire that had hijacked him. What the hell else had gone wrong with this Earth?

Mela said, ‘You’re studying us. You must see we mean you know harm. You haven’t even told us your name.’

There was a hint of sternness about her that Hackett immediately respected.

‘Sorry. I just woke up, it’s hard to focus.’ He looked up at the old priest, or monk. ‘My name’s John Hackett. You may know me, though I hope not, as Perseus.’

The man in the green robe gasped, then pressed his fist against his mouth.

The other man looked about to drop to his knees.

Mela was watching Hackett, and evidently saw his dismay. ‘We’re embarrassing you.’ She smiled. ‘I’m sorry. This is my father.’ The taller man. ‘His name is Tenn. The other is Vitae, a Perseid priest.’ The guy in the

green robe. ‘He is an invaluable friend, and closer to me than family. Well, some of my family. Most of whom have gone now.’

Hackett eyed her. ‘Long story?’

Another crack like thunder outside.

She said, ‘Which there may be no time to tell ... You are Perseus. To us, a prophet, a god. You really exist, then.’

Hackett had to smile. ‘That’s one hell of a biography. No prophet, no god. I still do exist, however, by the grace of Substrate technology.’

They looked confused by that.

‘Oh. I hope you haven’t forgotten that the Substrate *is* just a technology? Made by humans? Shit. I’ve seen that before too. Heaven in a box, except it’s not Heaven. They should have stuck warning labels on the damn stuff.’

Mela was looking confused. ‘Who should?’

‘The makers of this Earth island, of course! Of all the thousand Earths up in the sky right now, and the thousands that have probably gone already, the thousands still to come. Depending how far we are along to the end of things ... The builders of the Thousand Earths, and of the Substrate. They were not gods, and nor am I, as I tried to convince your great Empress Ming the First, or whatever the hell she called herself.’

Blank faces.

‘All right. To get it in before the world ends, here’s the short version of my autobiography: I have travelled a long way, and I’m probably the oldest human being still alive. At least if you measure it externally, and include all the time I slept away in that damn tank over there, and in other Substrate containers, and as relativistic time have dilations stretched out my mortal life like toffee ... never mind.

‘But I’m *not* a god. I am a human. As human as anybody is after a spell in the Substrate, anyhow.

‘I’m not a preacher or a prophet.

‘What I am is a traveller ...

‘I had friends, long ago – back when the first Thousand Earths were being built. The first islands hung up in the sky. They knew how restless I was. So they built me a ship.’ He gestured back at his coffin. ‘That thing. About as basic as you could get, but enough for my purposes, for me to explore the Thousand Earths. A basic Substrate container so I could sleep away the journeys, and a basic propulsion system, drawing on the energies

of the Thousand Earths themselves, the fields in which the island worlds are embedded. And controlled by those fields, by the way; if I had wished to crash-land on the palace of Ming the First, I wouldn't have been allowed to.' Glancing around at them, the uniforms, the religious garb, he said, 'Although it might have been better if I had been able to.'

'Look. Do you have records of your first Empress? Not the names. The dates—'

The priest, Vitae, spoke up. 'She founded the Empire five hundred years ago. She argued that central control of humanity was necessary, for the world was already shrinking back, the Perimeter advancing.' He sighed. 'Even then we were scientific, literate – the records have survived, or some have after generations of purges ... We knew the basic nature of the world. We knew the Substrate foundation of this world-island was shrinking—'

'As they all do,' Hackett said. 'All the worlds. They're designed to. But until the last few centuries of an Earth's existence – perhaps as much as a thousand years – that shrinking affects only the wider Substrate structure of the world-island, and *not* the habitable centre, the land, the seas – the life. Never mind. Go on.'

Vitae said, 'That first Empress decreed that order would be necessary in ages to come, as this Earth shrank. Order imposed by a centralised control. To ensure an equitable share of the diminishing land for humans, animals, food growth and so on. Well, she won: copies of her original five-hundred-year plan still hang in the capital city, Sirius—'

'Sirius like the star?'

That just confused them.

Vitae said uneasily, glancing over his shoulder, 'Not much of the city of Sirius, and of such relics, can remain by now. It's all gone into the Tide – well, you just missed it. But she did build an empire. And, who knows? Maybe some semblance of order, of governance, did help maintain, even prolong human life on this particular world-island.'

'At the cost of great cruelty and suffering,' Tenn murmured.

Hackett was aware of how little the man had spoken. 'Well, I've seen other Earths. Many of them. I'd guess your Empress and her successors did you no real favours—'

Vitae said, 'She used you, Perseus.'

He had thought as much. ‘You mean, my divine authority, or some such? Look – just let me repeat it. I’m no god, no spirit. I’m human. I was a traveller. I *am* a traveller. In this ship, which is not a damn coffin, not in the beginning. And my name is not Perseus. Or wasn’t.’

Vitae and Tenn both looked crestfallen.

Mela frowned. ‘A ship and a traveller called Perseus ... So what did happen to you five hundred years ago?’

‘I had already been travelling around a while. A *long* while. I had observed on many worlds that, without meaning to, I could spark off legends of the wanderer from the sky, who might come again to save everybody, and so forth. I didn’t like to feel I was meddling in anybody’s development. These were your worlds, not mine.

‘For instance, on one world I stayed with folk who were expert grain farmers, and they made toast – scorched bread? – like you wouldn’t believe. I just gorged on it. But then when I came back to the same location a few centuries later, I landed in the middle of the annual global toast festival, where they set up a simulacrum of me and my ship, and a kind of giant griddle before which they prostrated themselves – well, you get the idea. I was the god of toast, and other bread-related products.

‘So I disavow divinity. I always just tried to be a symbol of continuity, you know? Of unity, even. Worlds come and go, a thousand worlds at any one time, and the old worlds die and the new ones are born to join that host – but we’re all just humans, together. Humans *built* this damn thing, not some god. Humans like *us*.’ He thought to look to Vitae and Tenn. ‘Look, I see your robe, I can read your manner. I hope I’m not the God of All Disappointments to you both.’

Tenn and Vitae shared a glance.

Then Vitae smiled at him. ‘Never a disappointment. But it’s clear your legend here has become – elaborated. And, on this world, exploited to give the Empire a kind of legitimacy.’

‘Well, I guess I blame myself for that. I stuck around here too long. When I do that, I do find I attract ... cultists. No offence. But, as I told you, this time I was captured. By the first great Empress, whatever the hell her name was. After the bloodshed and the looting, there was a kind of formal founding of a world empire that had been coalescing politically and

practically for centuries already. I think that was when the capital city itself was founded—’

‘Sirius,’ Vitae said. ‘In the Heartland Mountains. Which is where we are now.’

Hackett nodded. ‘Axial mountains? A common feature on most of the world islands. You get some kind of continent over the centre, raised to maintain the hydrological cycle, evaporation from the oceans, rain-outs to feed the rivers ...’

Vitae looked excited by that. ‘Exactly. *Exactly*. There *is* a bulge under the centre of this world, just as I and other scholars have proved long ago ...’

Hackett gave him what he hoped would be an appropriately congratulatory smile. ‘So Ming wanted some way to legitimise her rule. *And* her dynasty’s – something that would transcend a mere human lifetime, mere centuries. She needed a symbol.’

Mela said, ‘And she found it in you.’

‘Yeah. But she was no – Perseid? As I understand it, she followed some other cult. Star-worshippers?’

‘Indeed. They call themselves Starrists.’

‘Yeah, right.’ He glanced up at the sky. ‘Even though by now, even in your darkest nights, there can’t be many stars still visible anyhow. Well, at least to worship the living stars is rational ... but that’s another story.’

‘Anyhow I was a trophy, the centrepiece of the downed rival cult, yes? Look, Ming said I was never to leave this world again. Because if I was buried here, or under Sirius City, *her* city, I would give her dynasty a kind of legitimacy, for ever. A gift of conquest by the Living Stars, I guess, a permanent token of her victory over the Perseids, her deadly theological rivals.

‘I tried to escape, they dragged me back.

‘I should have left earlier. My own damn fault. I think I was just too – interested. I had heard of these centralised empires emerging on other Earths, but had never seen one for myself. You’d think they would be common, a kind of attractor in human societies; if they work, they *can* be a useful way of keeping the resources of a shrinking world shared out equitably. But I think more often than not they fall into despotism, with one theoretical justification or another.

‘And then it was too late. They made *sure* I couldn’t leave. They wrecked my ship. They smashed away the transport technology, leaving only the Substrate module.’ He glanced at the wreck, a stub of a craft. ‘That’s not a sarcophagus. It’s a spaceship, or it was—’

He found himself choking up.

His distress must have been obvious to them all, but it was the quiet soldier-type, Peri, who came to put a hand on his shoulder.

He got back control. ‘Thanks, kid. So, the story. They stuffed me inside, closed the lid, and buried me under the Empress’s new palace. Probably built some huge monument on top of it, so nobody could forget it was there. It’s not a new stratagem, you know. On the original Earth a religion called Christianity built its central palace, the Vatican, in another imperial city, over the bones of the closest friend of their martyred god – a man called Peter. So the legend goes, anyhow. Even if the man wasn’t really there, the legitimacy remained. I guess nothing is new in human history, not after this long.

‘But in my case I was definitely down in my box, stuck in the Substrate, legitimising whatever the hell they were doing to you people in my name aboveground.’

‘If we get time,’ Vitae said gravely, ‘we can talk about that. As a pushback, my variant sect tried to right various wrongs done in your name – well, we did our best. You did us good just by existing, Perseus – John Hackett.’

Hackett found himself puzzled. ‘Why do you say, *if we get time*? We’ve all the time in the world. We humans always have, since the invention of Substrate anyhow.’ He gestured at his mutilated ship – still a gateway to the Substrate of this world, if no longer a spacecraft.

Peri eyed him sceptically. ‘Maybe you’re not paying proper attention to the wider picture.’

‘Wider picture? I’ve been stuck in this shack since I woke up.’

‘Of course. Come and take a look outside. Come, please.’ She held out her hand.

They helped him stand, cautiously, and step out of the craft, even more carefully. Playing along, he held on to Peri’s hand, and – a little unsteady on his feet – followed her to the door of the little cabin.



And he looked out on the end of a world.

This little cabin stood alone on a summit, a rounded peak of what looked like granite, but probably wasn't. He could see the stump of a kind of bridge, evidently marking a lost path off this summit to some other feature, another island maybe, or the rocky coastline of what had evidently been a lake, or small sea.

But that body of water was drained now, and there was nowhere else to go. Even the dry seabed was crumbling. And beyond that, it seemed, only the eerie glow of Substrate.

'Ah,' he said. 'I see what you mean. *This* is why the ship – umm, the sarcophagus – opened up now. To give me some options. You too. This world is ending. The ship sensed we were here. It offers a way into the Substrate – and, well, we need one right now ...'

They seemed confused, hesitant about all this. He had a growing unease about what they might or might not understand.

Peri pointed. 'Sirius City was just over there. A day ago, a few hours ago. Your Tomb would have been lost with it, if not for a handful of bandits who stole it and hauled it out here.' She murmured, 'One of those bandits being Mela's brother. Tenn's son. He tried to push your sarcophagus into the deepshaft. There's a deepshaft inside the cabin. He—'

'A deepshaft? Access to the deep Substrate? He tried *what*? That would have screwed up the systems royally, I think. It's lucky you stopped him. Wow, we'd have been stuck. No way into the Substrate ...' Much as he had always been wary of the Substrate, that thought terrified him now. 'But you stopped him, right?'

Mela said bluntly, 'We had to kill him. I had to kill him.'

He recoiled – then looked at her with new eyes. 'Oh, wow. Your brother ...'

This dying world was a deep, dark place, he was realising.

Peri said, 'I can walk you around this summit if you like. The view is pretty much the same.'

'No.' He glanced around, then sat down on the bare rock, facing the way to the vanished city – a city he remembered from its founding, and he found he was sorry he had never seen what it had become, at its peak. It had probably been monstrously beautiful, he supposed, like most imperial capitals.

He was trying to put the news about the killed brother out of his mind. None of his business.

'No, let's sit and be calm. Only hours to go, right?'

'We think so,' Vitae said. 'At this location.'

Hackett shrugged. 'Well, think of it as a privilege. Not everybody gets to see the actual end of a world.'

Old Vitae sat down cautiously, then Tenn, sitting to either side of Hackett. Only Mela and Peri paced, restless.

Peri stared at Hackett. 'Aren't you – afraid? Sad?'

'Sad? About the loss of some beautiful landscapes, maybe ... Look – the story of this world is ending. But there are a thousand – minus one – *more* worlds up there in the sky right now, where people are living and dying and having babies and such, and wondering what all the fuss is about. And as for this world – it was your world, not mine – but it will always be available in the Substrate. And as for the people, look, nobody who chose the Substrate, or who was taken to it when they died, ever *truly* died. You know this much, of course?'

They looked blank.

And he did a double-take.

'Oh. *Oh*. You *don't* know what I'm talking about, do you? Your Sirius Empire really has been a half millennium of lies, hasn't it?'

'Look – take it from me. I was there. And I saw how people *built* this thing. This world, and its predecessors, this system of worlds. They weren't gods – not even the smart stars are gods, though they do exist. *People* built all these thousand Earths – and the thousands before them too. And I know, as everybody once knew, that they were all built by taking apart Old Earth, the first world of humankind—'

Peri broke in, sounding angry. ‘And were all the worlds designed to end like *this*?’ She waved a hand at the wrecked landscape.

And again Hackett was stunned. *They don’t know. They genuinely don’t know how it’s supposed to end.*

‘No. No, it’s not supposed to be like this. Or rather, you should *know* how it ends. When you get down to the last five hundred years or so, with the world still nine, ten thousand kilometres wide, there should be an intervention. Avatars. A kind of robot ... Do those words translate? I saw them at work a few times, on other worlds. At other endings. They’re very smart machines. Empathetic, too. And they work across the last centuries of a world. They supervise migrations back from the crumbling edge, and take people from the dying world to others in the sky – maybe to a brand new Earth – while those who choose the Substrate are helped to access it.

‘Clearly, that didn’t work out here, did it?’ He looked around, starting to understand. ‘Instead you had five hundred years of chaos and imperialism, before this apocalyptic end?’

Vitae nodded sadly. ‘That sums it up.’

‘Five hundred years ...’ He thought back. ‘Why would *this* world go so badly wrong? Maybe it was that damn Empire. Maybe they blocked the Avatars when they came. I suppose five hundred years is a long time to enjoy a bit of wealth; you don’t want robots dismantling your world-empire around you ...’

He could see Mela was thinking, hard. Maybe she was the sharpest of this little group. He wasn’t surprised when she asked the next question.

‘And what then? I mean, when the last Thousand Earths are exhausted, when this “Old Earth” you speak of is all used up—’

‘Then we’ll go on. Humanity will survive. Even if it’s only in the Substrate. It took me some time to accept the Substrate’s presence in all our lives, I can tell you. But it’s a limitless resource. Which has something to do with the cooling of the universe, which I admit I fail to understand. Better than the alternative, right?’

‘Look, *this* age, with that cold and dead sky beyond the Earths, would have seemed starved back when I was born. Cosmological epochs ago. But in the Substrate now are immense numbers of humans, tens or hundreds of trillions of them. Billions of trillions ... I can’t remember. As I understood it, the hope, the belief, of the designers was that someday still greater

*composite* minds will arise within the Substrate, and – well, that they will build the universe afresh. I never bought that.

‘But it doesn’t matter.

‘To me, what it’s all about is each other: we remember, we cherish. We did the best we could using *all* we had, in the end, that was ours – our planet, the first Earth, the true Earth. We dedicated it to memory, to commemoration, to love. And that isn’t so bad an ending, is it ...?’

The ground shuddered beneath him.

They stood, hastily.

‘We ought to go back,’ Vitae said. ‘To the hut. The end process isn’t likely to be smooth. We may last a bit longer at the very peak. In the hut. Come, come.’ He stood hastily.

All this puzzled Hackett. Still, he stood too – but too quickly. Suddenly he felt dizzy again. *Too much damn toast. And they still don’t get it. Curse you, absent Avatars.*

Mela came to him, took his arm, steadied him. There was something about her strong, calm presence that was immensely reassuring.

‘OK,’ he said. ‘Let’s go take in the view. We can access the Substrate through my coffin-ship in the hut – or even through that antique deepshaft. Everybody can take refuge in there – all of us can ... we can join all those who went before us ...’

Holding on to each other, they staggered back to the hut.

But Mela still seemed confused. ‘These things you say ... You can’t be saved by the Substrate if you’re already dead.’

And that got through to Hackett, and his memories of Sarah. The irretrievable loss he had suffered so long ago, the one life he could never retrieve no matter how he wandered. ‘Oh, wow. Is that what you believe?’

Mela said, ‘And you can’t be saved unless you are committed through a deepshaft, with the proper words spoken ... That’s what the faith says.’

Vitae nodded sombrely.

Hackett barely heard any of this. ‘What the hell are you talking about?’

Tenn seemed to sense his distress. He touched Hackett’s arm, gently. ‘Please forgive my daughter. She lost a twin sister, long ago. She was called Ish.’

Mela said, 'It was at the edge of the world. The advancing edge, far from here back then. There was a scrambled evacuation – and Ish was lost as the Tide, the Substrate surged.'

'The Tide?'

Tenn nodded solemnly. 'Which even now rises all around us.'

'I'm sorry ...' But Hackett was growing increasingly confused. 'Wait. You're telling me that she *did* enter the Substrate.'

'No. She was lost in the Tide,' Tenn said firmly, as if confirming it to himself, Hackett thought. 'We could not commit her to the Substrate, to a deepshaft; we had no body. No words were said.' He glanced at the old priest. 'No blessings offered ... Even Tabor was saved; I said the appropriate prayers over the deepshaft here on this island, where he fell—'

'Yes, but – oh, look, what the hell are you talking about? A deepshaft is just a hole in the bedrock, cut through to reach the Substrate. Who the hell told you that you *have* to do it *that* way?'

Vitae looked baffled. 'It has always been this way. Ever since—'

'Bah. Ever since the damn Empire was founded?' He went to Mela, grabbed her shoulders. 'Listen to me. You've been fed bullshit. And if that word is too archaic, you can guess the meaning.'

'You don't need a deepshaft to enter the Substrate. You don't have to fear this thing you call the Tide. *The Tide is the Substrate*. You could just jump in. And my own ship, my sarcophagus. You can get in through *that*, even. How the hell do you think I accessed it?'

'Look – the Substrate is all of a piece. Even if its access points are physically separated. The Substrate isn't *stuff*. It's not one big pot where you dump the dead people. It's more like a – a memory store built into the fabric of the universe itself. Where a copy of you – no, the essence of *you* – is preserved indefinitely. Oh, hell, that makes no sense even to me. But, look.' He pointed. 'My ship, my sarcophagus. The Substrate is *in there*. And it's also outside right now, in this Tide as you call it. It's everywhere.'

They all seemed baffled.

But Mela was the quickest to see the implications. 'Then Ish wasn't lost ...'

Again the summit shuddered, the little shack creaked around them. A sound like thunder came booming from *under* the ground.

There wasn't much time.

Hackett said, 'I thought you knew all this—'

Mela said, 'Ish isn't lost. *Then bring her back.*'

Hackett was beginning to understand the profound ignorance of this culture, the deep misunderstanding of the technology that had preserved them and their ancestors. Even once they were all safely lodged within the Substrate, it was going to take a hell of a lot of work to help them understand, to rehabilitate them.

A whole world full of frightened, baffled people.

Another chthonic shudder. The noise, of rock cracking and falling, was all around now, and growing louder.

But Mela wouldn't quit. '*Bring her back,*' she said again, her face like stone itself.

Tenn touched Hackett's arm. 'Please – if you can—'

And he felt himself grin. Suddenly he had a mission.

Pressured – frightened himself – Hackett leaned over the mutilated relic of his ship. He concentrated on the idea of this woman's long-dead sister and touched the craft.

They all crowded in around him.

There was a wider roar outside, a wind battering at the hut walls. A wind that wouldn't let up again, Hackett thought. A wind that was the last of this world's air, pouring into the Substrate Tide. Not long left, and here he was doing parlour tricks ... He closed his eyes, visualised Mela, her father ...

... and there she was. Perhaps in her twenties – thinner than her sister, taller, prettier – bewildered – and naked, lying in the coffin-like ship.

She opened her eyes. She actually smiled.

Mela shouted in triumph, and fell on her.

Tenn was weeping. He held his daughters. 'I always promised I would be here with you at the end, didn't I?

Vitae, meanwhile, was evidently astonished, his leathery face full of wonder. His faith vindicated, perhaps. Hackett would have to do something about that, before they did start bowing down before him as to a god.

Peri grinned at Hackett. 'Let's get them out of here.'

'Yeah. This Earth's a bust. Come on. Follow me ...'

They all crowded around the *Perseus*.

It began with an ending.



It ended with a beginning.

## Afterword

In this work of fiction I have tried respectfully to reflect some historical instances of the forced displacements of peoples, including the partition of India under British rule (see Barney White-Spunner's *Partition*, Simon & Schuster, 2017), the Trail of Tears in the United States in the nineteenth century (see John Ehle's *Trail of Tears: The Rise and Fall of the Cherokee Nation*, Anchor Books, 1988), and examples from the Second World War (*Britain's Wartime Evacuees* by Gillian Mawson, Pen & Sword Books, 2016; *Paris in the Third Reich* by David Pryce-Jones, Collins, 1981).

Daniel Deudney's *Dark Skies: Space Expansionism, Planetary Geopolitics, and the Ends of Humanity* (Oxford University Press, 2020) is a recent if controversial survey of the potential for near-future conflict caused by an expansion into space. The shortage of water in the inner Solar System is real, and may be a cause of such conflict (see my 'Dry Space and Solar Sails: Resource Limits and Environmental Constraints on Near Future Space Industry', *Journal of the British Interplanetary Society*, vol 74, 2021, pp. 278–83).

The magnificent concept of the ramship, a constantly accelerating, relativity-busting spacecraft, apparently goes back to a paper by rocketry pioneer Eugen Sanger, published in the journal *Acta Astronautica* in 1957, and famously featured in Poul Anderson's novel *Tau Zero* (Doubleday, 1970). The dark energy ramscoop depicted here, previously featured in my novel *Galaxias* (2021), is my own irresponsible speculation, and see my technical paper ('The Wormship: A Dark Energy Ramjet', *Journal of the British Interplanetary Society*, vol 74, 2021, pp. 56–63).

*The Five Ages of the Universe* by F. Adams and G. Laughlin (Simon & Schuster, 1999) is still an invaluable guide to the deep past and far future of our universe, although now (ironically) somewhat dated. *Five Ages* (p. 68)

mentions speculation by Fred Hoyle and others that a ‘random walk’ of life from a single source, drifting by chance from star system to star system, might eventually cover the Galaxy, albeit after trillions of years.

The idea of using lasers to trigger supernovas was floated by L. S. Shklovsky and C. Sagan in *Intelligent Life in the Universe* (Holden-Day, Inc., 1966), in the context of mining such stars for their heavy elements.

The idea of life inside stars, or even living stars, has a long pedigree – even excluding pre-scientific ideas of Sun gods. Astronomer William Herschel, discoverer of Uranus, believed at one point that the Sun and stars must be, if not alive, at least inhabited – for much of the universe was assumed to be inhabited (see *William Herschel* by Angus Armitage, Nelson, 1962, pp. 51ff). More recently G. L. Matloff (*Starlight, Starbright: Are Stars Conscious?*, Curtis Press, 2015) has developed an intriguing if controversial thesis that quantum effects within stars might enable consciousness – and that they might purposefully swarm in their flight around the Galaxy. In science fiction, Olaf Stapledon’s *Star Maker* (Methuen, 1937) described living stars (Ch. XI, pt. 3); more recently Gregory Benford and Gordon Eklund touched on the trope (*If the Stars Are Gods*, Gollancz, 1978) – there may be many more examples. For details I have drawn here on *Life Beyond Earth* by Gerald Feinberg and Robert Shapiro (Morrow, 1980), although I have extrapolated far beyond their speculation.

Speculations about composite human societies include Dandridge Cole’s ‘Macrolife’ (*Social and Political Implications of the Ultimate Human Society*, The American Astronautical Society: January 18, 1961).

Regarding the Substrate I have drawn on the ‘Aestivation hypothesis’: the idea that perhaps aliens are effectively hibernating through the ‘summer’ of the cosmos, waiting for universal expansion and cooling, after which information processing will become much more energy-efficient – and so effectively longer lives would be possible (see A. Sandberg et al., ‘That is not dead which can eternal lie: the Aestivation Hypothesis for Resolving Fermi’s Paradox’, *Journal of the British Interplanetary Society*, vol. 69, 2016, pp. 406–15).

All errors and misapprehensions are of course my sole responsibility.

Stephen Baxter

Northumberland  
September 2022

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