

ADRIAN
TCHAIKOVSKY

CHILDREN
OF
MEMORY

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*CHILDREN OF
TIME*

"Tchaikovsky is one of our finest writers." —GARETH L. POWELL

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TCHAIKOVSKY



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Cover design by Steve Stone

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Orbit

Hachette Book Group

1290 Avenue of the Americas

New York, NY 10104

orbitbooks.net

First U.S. Edition: January 2023

Originally published in Great Britain by Tor, an imprint of Pan Macmillan, in November 2022

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Library of Congress Control Number: 2022941746

ISBNs: 9780316466400 (trade paperback), 9780316466516 (ebook)

E3-20221223-JV-NF-ORI

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WHAT HAS GONE BEFORE

The Terraforming Age

I

Thousands of years ago the humans of Earth reached out to the stars. Under the terraforming project of Doctor Avrana Kern, they began to reshape worlds to make them hospitable for Earth life. Only one planet, Kern's own project, was close to being finished when the end came. A political crisis on Earth resulted in a cataclysmic war that poisoned the human homeworld, set civilization back into an age of ignorance and unleashed an electronic attack that was transmitted out into space to shut down humanity wherever it could be found.

II

On Kern's World, her facility had already fallen victim to sabotage and she preserved herself as an uploaded artificial mind, watching over the planet she had remade. An uplift nanovirus that had been released onto the world, intended to raise up primates she'd never had a chance to install, instead began its work on a variety of invertebrates, most particularly one species of spider.

III

In another star system, over the neighbouring planets they named Damascus and Nod, a handful of terraformers survived the electronic attack. One, Disra

Senkovi, used the same nanovirus to uplift octopuses to build a civilization on the water world of Damascus. Erma Lante and others instead went to Nod, finding there an alien ecosystem, the first truly extra-terrestrial life humanity had ever discovered.

IV

On Nod dwelled a composite microbial life form capable of recording all its past experiences within its cells. After discovering and analysing Earth biology, the Nodan organism then colonized Lante and her fellows, devouring and rebuilding and becoming them. In a tragedy of misunderstanding, the entity next spread to Damascus and destroyed the Octopus civilization there while trying to understand it, leaving the Octopuses living in orbit and space, and in crisis.

The Second Dawn and the Age of the Ark Ships

V

On Kern's World, over many generations, the Portiid spiders developed a complex society, including organic technology and computing performed by colonies of ants.

VI

On Earth, humanity clawed its way back into space, rediscovering the records of its predecessors and the coordinates of the terraforming missions. The after-effects of the war had left the planet a poisoned wreck, so in desperation ark ships were built, fleeing outwards on the promise that there were other worlds out there prepared for human life.

VII

The ark ship *Gilgamesh* reached Kern's World and encountered both the Portiids and the artificial intellect of Avrana Kern. After coming to the brink of war, the Portiids infected the *Gilgamesh* humans with a version of the same nanovirus that had set them on the path to sentience, bridging the species divide and allowing humans to become Human, capital H. An uplifted species capable of recognizing the Portiids as fellow sentients, with whom they can share their world.

The Age of Exploration

VIII

Generations later, a Human–Portiid vessel carrying an uploaded instance of Avrana Kern reached Nod and Damascus, encountering both the Octopus civilization and the Nodan organism. Kern found the latter desperate to experience a wider universe, now that contact with humans had shown it the true scale of existence. Kern convinced the entity that communication would provide it with the stimulation it needed, whereas devouring would only ever reduce the universe to copies of itself. Peaceful accords were reached between the inhabitants of Kern's World, Damascus and Nod, the tentative beginning of a cross-species interstellar society.

IX

Later, after having had access to research previously off limits due to the risk of Nodan infection, Octopus scientists tested out a refinement of a starship engine. This permitted faster-than-light travel within the bounds of relativity, allowing the new combined culture to travel swiftly between the stars. Their missions are now many, but chief amongst them is to search for and reach out to other life, whether alien, remnants of the terraforming age, or even ark

ships from ruined Earth still trying to find a home.

DRAMATIS PERSONAE

Terraformers and their worlds

Avrana Kern—Kern’s World

Disra Senkovi—Damascus

Erma Lante—Nod

Baltiel, Rani, Lortisse—Nod

Renee Pepper—Rourke

Alex Tomasova—Rourke

Mikhail Elesco—Rourke

The crew of the ark ship *Enkidu*

Heorest Holt—Command

Halena Garm—Security

Olf—Engineering

Mazarin Toke—Science Esi Arbandir—Classicist

Dastin Gembel—Science second

The crew of the Portiid vessel *Skipper*

Bianca—Portiid spider, in command

Avrana Kern—uploaded intelligence

Miranda—Interlocutor

Portia—Portiid spider

Fabian—Portiid spider

Paul—Octopus

Jodry—Human

Gothi & Gethli—Corvids

The people of Imir

Liff—a child

Her parents
Molder—her uncle
Garm—guard hog
Arkelly—Councillor
Yotta—a child, Liff's friend
The Widow Blisk
Miranda—a teacher
Portia—a hunter
Fabian—an engineer
Paul—an artist

PART 1

THE ANCIENT MARINER

The Ark Age

Long ago

1.1

Not with a whimper, but a bang.

The ship had shot Heorest Holt full of all the right drugs to ensure a peaceful re-entry to life, but he hadn't been ready for what sounded like the end of the world. It had only been a subjective moment since they'd all been gathered in Command, discussing the target, celebrating their success. Esi Arbandir, their chatty classicist, had even brewed up something alcoholic and drinkable from the *Enkidu's* ancient printers.

Their success: being further away than any of their people had ever gone, older than anyone ever was. A fragment of Earth that was, against all odds, going to live on. The ship was still holding together and, although Olf from Engineering had been dolorously tallying the failures and dead systems, the simple fact that he was alive to speak and they to hear seemed to cheat all probabilities; to cheat even certainties, up to and including death itself. They'd survived. They'd made it. Almost two and a half thousand years in silent, cold transit across the void. And now they'd even collected data. Back then, in that previous waking, Holt had been given a wealth of hope. The star system that they'd set their sights on was there, and if that shouldn't have been too much of a surprise, well, the planet was there too, immediately detectable. A system of fourteen worlds tugging at their mother the star and one, fifth out from the sun, that the Ancients had chosen as enough like Earth to transform into a paradise.

Or that was what the classicists claimed, and what else did poor, fugitive humanity have to work with? As the drink flowed, the half-dozen of them had speculated about just what might await them there. Olf talked about a pristine world, built for them by their unthinkably distant ancestors and then left, like goods with the wrapping still intact. As though somehow the Ancients had been prescient, knowing of their own upcoming downfall as well as that Holt's people would come to succeed them, aeons later. That they

had rebuilt a planet as a Just Reward For Those Who Were To Come, and then quietly left. And, with that drink flowing, the thought hadn't seemed so outrageous. They'd toasted it. Esi the classicist had chattered away about what else the Ancients might have left: the intact machines, the archives of lore, the wonders of their lost age. The Ancients themselves, perhaps, living in some perfectly regulated society which would welcome their penurious relatives. *From Earth?* they'd say. *Why, we thought there was nobody left! Come in, come in and partake of our plenty!*

Science chief, bald old Mazarin Toke—well, they were all hairless as eggs, out of suspension, but he'd been bald before they went under—had come out of sleep blind and with one arm and leg withered. He wasn't taking it well. They'd printed him a mobile chair, and he had his second, Gembel, to act as his hands and eyes, but the drink had made him mean and dour, even as he celebrated with them. The Ancients, he proclaimed, would probably still be there but, having been cut off from wider Earth, they'd have degenerated into savages, living like beasts in a world designed to meet all their needs and present no challenges. *We'll probably have to hunt them for meat*, he'd declared with sour joy, and everyone had rolled their eyes, but toasted with him anyway.

Only Halena Garm hadn't appeared at the impromptu table, cheering on the future. She'd been trying to glean more about the planet, their destination. It wasn't her job, they called out to her genially. It was, she said. She was Security head, and what greater challenge did Security have than the planet itself? She wasn't worried about beasts or atavistic Ancients. She was worried about incumbents on the new world who wouldn't take kindly to a failing boat full of their distant relatives pitching up out of the black. *They'll have their own problems*, she'd said. *Of which we'll just be one more.*

And so she'd sat there trying to bootstrap the ship's instruments to full functionality while the rest of them celebrated. Once, just once, she claimed there was a signal. A transmission coming from that distant orb. But the ship hadn't recorded anything but static and she couldn't repeat it and at last she'd given up in disgust.

They'd gone back into suspension, eventually. Olf had forcibly sobered himself up and run through all the proper checks—Engineering's final report had been sobering for the rest of them. The ship was in the red on almost every metric. *We almost didn't make it*, was what they'd told each other. But

they were so close now. Just a short step across the icy abyss to their new home. Maybe it had a name, that unseen world, with inhabitants who knew what it was called, and its long and storied history. Perhaps the greatest crisis the cap-in-hand refugees from Earth would face would be one of diplomacy, negotiating for landing sites and living space. But Holt had felt sanguine about that. It would be his responsibility, and he knew he could do it, no matter what compromises were needed. The fate of the human race was at stake, after all. He would find a way.

But maybe the world had no people on it, to name it and present diplomatic obstacles. Maybe it *was* a paradise, like the classicists promised. No hoary and advanced society of Ancients; no state-of-nature nouveau primitives or barbarous tribes or mystic masters with strange mental powers; no talking animals like something from a child's story. In that case, the honour would fall to them, the Key Crew of the *Enkidu*, the last scions of Old Earth. They'd talked round and round the table: names historical and names potent, names brimming with meaning, names that rolled lyrically off the tongue. In the end it came down to Captain Heorest Holt, head of the Command team. He'd looked over each of them with great fondness, his crew, his people, his friends. Esi, life and soul of the party; small, reliable Olf; bitter Mazarin with young Gembel refilling the old man's cup; even stern Halena who'd at last been persuaded to join them. They had trained together—all save Gembel, anyway, who wasn't allowed to get a word in edgeways to make himself known. Unlike so many of the ark-ship crews, they'd been given time to reshape themselves around their colleagues until they fit like puzzle pieces. They were a team. And they'd done it. They'd piloted this gallimaufry of failing systems across actual light years, based on nothing more than fragile maps recovered from millennia-dead orbitals. And the star was there; and the planet was there; and hope was there.

"Imir," he'd told them all, raising his glass. Honestly, by that point in the proceedings, he couldn't have said exactly why. He just looked down his long nose at them and told them it was deep and significant and meaningful, while having the vague idea it was from some old story he'd read once, when he was a child. A story with talking birds and strife, and new life being built upon the ruin of something vast and terrible. And *Imir* seemed good enough to everyone, even to Mazarin Toke, and so they'd toasted that. Then it had been time to get sober again and back into the beds in the suspension

chamber. If he'd wanted to sit and wait until their arrival then the grandchildren's children of the children he'd never have would have grown old and died before planetfall.

And now here he was. Moments later. Centuries later. In the middle of waking with grace and composure, about to set the new world to rights, but something had detonated. Abruptly, all the air in the suspension chamber was very keen to be out of the suspension chamber, and he, Holt, sitting up, yawning, was ripped from his pod and spilled across the floor. He felt a dozen hoses and ducts of varying degrees of intimacy yanked out of his body, and he knew he was going to die. Yet he didn't die. The air howled past him into nowhere, and then stopped doing that just as he was sure there was no air left to go anywhere. The deck beneath him shuddered to the thunderous closure of bulkheads.

The lights died. All he could do was lie there, collecting himself, scrabbling for the last rags of that grace and composure he'd felt so full of a moment before. And he was Command. He should be leaping into action, telling everyone what to do. Except he didn't know what to do, he didn't know anything.

There was a light. Just a little red one. He tried to get to it, managed to find his feet, then find the wall the hard way when he misremembered the dimensions of the suspension chamber. Found a bank of switches under his trembling hand. His fingers remembered how to open a channel, which was just as well because the rest of him had nothing useful to contribute.

"This is Holt," he said into the staticky void. "This is Command. What's going on?"

After too long, the jagged, broken-up voice of Olf came through: Engineering, the one department Holt really, really wanted to hear from.

"Captain," from Olf. "Heorest. Stable. We're stable. I think we're stable."

And, as if needing Olf's reassurance before venturing out again, the lights in the suspension chamber came back on. Holt looked around, shrugging out of the open-backed gown he'd slept in, fumbling in the lockers for a shipsuit. Olf's pod was open, the lid now hanging off at an alarming angle. His own had slapped shut after ejecting him. Bare-footed, he stumbled over to look at the others. Halena's was empty, the lid almost shut but trailing hoses caught

in it. He couldn't put any good interpretation on that. Oh, perhaps she'd got the jolt at the same time he had, but had just gotten her head together more quickly. It seemed more likely, though, that Olf had felt a stronger need to be Secured than Commanded first off.

Esi and Mazarin were still under. Nothing needed Science done to it, apparently, and everyone knew the classicist would be the last to be woken, unless one of the Ancients was staring them in the face. Except, while Esi's readouts were all within tolerable amber, Mazarin's were either in the red or just out like blown candles. Olf had fitted a new pod for him, after the mess the last one had made of the man, but perhaps the failing systems had been integral to Mazarin, and not part of the ship at all. He was dead, and that was that. And he hadn't been the easiest man to get on with, but he had been One Of Us.

Holt started Esi's wake-up procedure, and sent remotely for Gembel, the new Science chief, too. While they were woken up, he liaised with Olf about how bad things were. Because he didn't want to go do his job without a full Key Crew. Because he didn't want to even think about coming back here to find more red lights and fewer friends.

Olf looked smaller than he had been, shrivelled in on himself by suspension, his shipsuit seeming to pool around him as he perched on his seat. "Deceleration," he said. "Captain. Heo. I did everything I could. I ran all the checks—"

"We know," Holt said. "Just tell us."

The *Enkidu* had survived all those long light years from Earth, coasting across the vast and silent depths of space with minimal system activity, just baseline power and the suspension systems. All the many thousands of pods—keeping alive the tiny crew, plus the vast population in the hold. The minuscule proportion of the population they'd been able to get off Earth. And things had gone wrong along the way, of course. Olf and Holt, and a varying selection of crewmembers, had come out of their long death-sleep to fix them. But overall, everything had proceeded as planned. Because, although space was full of hazards, it was mostly full of nothing, and that nothing didn't push the tolerances of the ship to breaking point.

Then they'd finally reached the system they'd been travelling towards for longer than the recorded history of their civilization, and had been forced to slow down. As the *Enkidu* had fallen into an arc around the sun, using the

drag of the star to save on fuel as they decelerated, something in the vast old vessel's vacuum-eroded hull had fractured.

"We... we've, we've lost," Gembel was saying, high emotion and a natural stammer collaborating to choke his words off, "eleven thousand and ninety-four units of cargo, sir. Eleven. Eleven thousand. Ninety. Four. Sir."

"Creator forgive us." Esi Arbandir, now out of her pod, put a hand on Holt's arm and he touched her fingers.

And he shrugged her off. He shrugged her off because he had to, and asked, "How are we now? Hull integrity? Can we even make orbit?"

Olf was nodding, working with the *Enkidu* to model the damage and how much worse it would get the moment any more stress was applied to the ship. The stress of slowing down. The stress of altering their trajectory from a line into an orbital curve. The killing certainties of mathematics.

"Going to hurt," he said. His projections sprang to life on everyone's display. And straight away Halena Garm started tampering with them, conjuring a deployment of their shuttles, their haulers, even the automated drones; how they might act as buffers to keep the battered old *Enkidu* together, spending their own integrity to protect the mothership. Holt slumped in his seat, the pair of them bickering back and forth, as he ran through all the other reports. Before the detonation, Olf had already been trying to evacuate some of the cargo. He'd seen the problems, just not how bad they were about to get. Halena had had a security team woken up and mobilized as people-handlers, except the people they'd been about to handle were gone now, along with a whole splinter of the ship a half-kilometre long. Eleven thousand and ninety-four units of cargo. Meaning suspension pods. Meaning people.

Esi had her own models, using the same vessels Halena was positing as structural buttresses. She was trying to save the lost cargo. Except the vast majority of that cargo was already beyond recovery. Shattered, splintered, depowered. Dead in their sleep, with their last memories an embarkation on Earth over twenty-six hundred years before, objectively speaking. Maybe there were worse things. And maybe there would be more, because the ship was all flaws and vulnerabilities now, the hull and all its internal spars and struts and walls riven with weaknesses.

"No," Holt told her, and she stared at him, betrayed, eyes red but without tears because the suspension dried you out. "We save what we have," and he

went through Halena's amendments briskly, with a commander's dispassionate efficiency. Yes, yes, no, yes. He authorized the expenditure of resources, when those resources were a finite thing and made up their world. *Keep it together.* And he kept it together, which in turn meant they would keep the ship together. Only later could he let himself fragment, when the single thing under threat of fragmentation was himself.

They lost another seventeen hundred units of cargo to the final deceleration and approach, individual pods and fragments flaking away like the scales of a moth's wing. They also lost three quarters of the fleet that Halena had mobilized, sacrificial offerings for the ship that launched them. They lost and they lost and they lost, and Holt and his Key Crew stayed awake and did battle against maths and the universe for thirty-seven hours. *Rowing against the wind,* he thought. *Pulling against the tide.* Recasting the jagged claws of hostile physics as dark rocks, and the stuttering instruments as sporadic lightning that simultaneously threatened them and lit their way.

There were specialists and experts in that lost cargo. There were dreamers and poets and musicians. There were genius innovators and charismatic motivators and hard workers who would have made a difference, had they ever been allowed to. Human beings, each and every one of them irreplaceable. It didn't matter that there were over thirty thousand still showing green lights on the board. That didn't mean he hadn't failed. But he remembered his training. They'd been prescient, his teachers. *You will fail,* they'd said, and here he was, failing. *You will fail, and when you do, you must do everything you can to fail as little as possible. Don't let the failure get its teeth into you. You will make decisions that come with a cost. That is Command. Do not let the cost consume you.* He had sat alone, like they all had, all the prospective ark captains, hearing that cold party line. Being told that he could *care* on his own time. But when he became the Commander, then he had to *decide* instead. Decisions that meant lost cargo, dead crew, dead *friends*. Because *Something Must Survive*.

He'd made the decisions, and something had survived. Most of them had woken to see the *Enkidu* claw its way into stable orbit. Most of the cargo was still alive, oblivious, sleeping. Half of the required remotes and automata were intact and, following Olf's repair protocols, triaging the human race as best they could. Most of the rest of the crew were also still alive, ready to be woken and take up the slack. Most of Heorest Holt was still a functional

human being, and the parts that wanted to scream and beat at the walls were locked away for now.

He told them, *Well done*, even though he knew they didn't believe him and he didn't believe himself either. Even though the scale of their losses was so great—almost thirteen thousand hopeful colonists who had survived two thousand six hundred years of space travel, only to be murdered by the simple act of trying to slow down. But he had to look at what was left and tell himself, *It could have been so much worse*. Back behind them, along that curving course they'd cut, between star and planet, was the very definite possibility that exactly zero per cent of either cargo or crew would have survived. They had rushed towards those rocks and poled away from them as deftly as was humanly possible. And they had lived. For a given proportion and value of "they." That would have to be enough because it was all they had.

Every department was waking up a second shift now. He was about to hand off to his own deputy too. Only Esi was still doggedly plodding on with her work, because her role would become relevant now that the actual danger of disintegration in hard vacuum had been staved off. She was preparing for the possibility of contact with the Ancients, revising her lexicon and composing initial greetings in a score of different dead languages, just in case. And that was probably a good thing because it kept her mind off everything she hadn't been able to do in the crisis.

"Well, shit," said Halena Garm, right out there and loud enough to snag everyone's attention. For a moment Holt thought it was something new and catastrophic about to happen to the ship, but it turned out there were bigger things that could be broken than the pummelled old ark *Enkidu*.

There was the planet.

Just as with the thirteen thousand lost hopes and dreams, it could have been worse. But these were supposed to be worlds that the Ancients had walked on and remade, with their unthinkable technology of which Holt's own was a mere shadow. An echo. A joke. That was the promise held in the star maps which those intrepid tomb-robbers had recovered—and paid for with their lives, in many cases. These were the homes their common and distant ancestors had prepared for them, all ready for the arrival of whoever actually survived the trip.

It seemed Imir was a drab dustball, however. The poles were icy. The

equator was desert. There were seas and the seas were water. The temperate zones, where the climate wasn't inhospitably hot or cold, was rock and a gritty substrate that wasn't soil because it didn't contain enough organics.

"What's alive down there, though?" Holt asked, and for a moment he dreaded the answer. *Nothing*.

There was something, though. The ancient terraformers had got just so far, and no further. There was a kind of phytoplankton in the seas and a kind of lichen forming patchy sheets on the rocks. On the fourth try, Halena was able to get a remote down there without it coming apart during the stress of entry, and that gave them a little more data. Esi said they were engineered organisms. Not even an ecosystem, but the definite fingerprints of a process that would have resulted in one, had it moved on into a variety of other stages. But because the organisms at work were artificial, and had been responsibly designed, they'd never evolved beyond their engineered state. Not in all the intervening millennia had these microscopic workers ever thrown off their shackles.

"What *have* we got down there?" Holt asked, because this was how you did it. This was Command. You did not mourn. You moved forwards.

"Breathable atmosphere," Halena told him. "Seventeen to nineteen per cent oxygen based on sampling to date. And that's it. There's nothing down there we can eat. Whatever we want, we have to make it ourselves."

1.2

Standing in Command up on the *Enkidu*, looking over the first survey data of the planet Imir below, Captain Heorest Holt had set his crew to find a solution. Brainstorm it. No idea too mad right now. The *Enkidu*'s orbit was faultless at least and, despite the damage to the ship and ongoing repair efforts, they'd been left with a workable manufacturing capacity. For small to medium-sized projects anyway. Loss of the major factory bays meant nobody would be manufacturing a new shuttle or anything of that magnitude. While Engineering patched holes, Science tried to build a future with the broken pieces fate had left them. Then Science told Security, who weighed in with how people might actually live in it, or fail to, and everyone went halfway back to the drawing board. Heorest Holt was forced to admit that nobody had thought it through properly back on Earth, because you couldn't have, not really. Not being as ignorant as they had been of what was waiting out among the stars. And a lot of people had desperately bought into the idea of pre-prepared Edens because what else would convince you to get on a ship bound on a multi-thousand-year trip into oblivion?

He hoped the other arks had found something better, but that was all the thought he could spare for the rest of the human race.

Remotes sent down to the surface brought back samples of the artificial terraforming organisms, and they really were just that. Gembel went into stammering rhapsodies about how elegantly engineered it all was, but that same sophistication meant there was nothing to them but their purpose. Plankton, microbes and lichen set about with tightly controlled genetic limits that all this time hadn't served to break. No threat to human life, at least. Nothing that was going to poison them or infect them. Little machines, really, with even their populations controlled by the way they were designed, so they couldn't run mad and cover the world in a festering microbial crust. Other than that, it was a world deader even than dying Earth had been when they'd

fled it. Seas without fish, land without grass, skies with no birds. Not even the paucity of species Earth had been left with, the opportunists and the scavengers, when humanity had finally given up on their old homeworld.

The *Enkidu* had a meagre library of genetic information and the ability to engineer some species. They'd thought life would be something their hosts would provide, but someone had at least laid in a little stock of knowledge against a worst-case scenario. They had some plants they could seed, some animals. Livestock. It wouldn't exactly be an ecosystem, but it might be a cradle that people could live in. For a time. Until something better came along. Until they cracked some secret that turned Imir into a paradise. Gembel had converted a chamber in the *Enkidu* into an Imir terrarium—an Imirarium?—and was trying to get things to survive in it. The chemical balance of the dusty earth was wrong, for Earth life. Not so wrong it would kill them straight off; wrong enough to have all sorts of long-term impacts. Could he breed plants that would filter out the wrongness and give them something to eat? Maybe. Research was ongoing. Gembel hadn't expected to be heading the science team, of course, save that poor Mazarin hadn't woken up. And Holt was asking the man to get a lifetime's worth of research done by yesterday. Which was particularly harsh, given that Imir's days were somewhere between fifteen and sixteen hours, a routine they were all trying to adjust to, and mostly failing. The years were just over three hundred short days and the axial tilt greater than Earth's, so the planet wobbled like a top and the hemispheres traded harsh winters and parched summers, separated by what Halena described as "lightning season." There was also a too-big moon, which had its own moon, making the tides a wild riot. This meant settling anywhere near the sea would be a fatal mistake; so much for maritime aquaculture.

Gembel and Halena were both constantly devolving jobs to Esi Arbandir, on the basis that—in the absence of any Ancients to chat to—she had basically become everyone else's stand-in. She could at least talk to Gembel about how the Ancients would have practised agriculture—to the extent anyone really knew. And how they had ordered their societies at various points—insofar as they had ever explained it in the surviving fragments of their writings. When she sent for Holt, he assumed it was to complain about being Key Crew's bitch.

She was in a compartment small enough that she could touch all the walls

from her seat, hunched over one of the ship's multifunction consoles. She'd been listening for signals, he saw.

"The other arks?" he asked. *Be good to know someone else made it.* But she shook her head.

"Listen to this," she told him.

She had been listening not to the stars but to Imir. Looking for some secret Ancient laboratory or cache, some gift left by their distant ancestors that would transform the world from wasteland to home. No such luck, but she had found...

Something.

Signals. Or at least it was a pattern to the background static. Except it was very complex, and the problem with patterns was that, even though simple ones were easy to recognize, they were most likely produced by nothing more sentient than the baseline workings of the cosmos. But as the pattern became more complex, and therefore more obviously artificial, it became harder and harder to pick out of the noise, until what you had was electronic pareidolia, coming full circle right back to nothing more than the natural buzz.

What Esi had been doing, whenever she had the time, was trying to isolate these signals. She'd told nobody else. The role of classicist was sufficiently derided that she didn't want to invite any more mockery. But now she was telling Holt. Because Holt and Esi got on well—sleeping together, on and off, listening to each other's gripes, just being *there* for one another—so she knew he wouldn't just laugh her to scorn.

She played him everything she'd recorded, and plainly thought it was nonsense. That she'd been staring at the wall for so long, she must have started seeing maps and charts and pictures in the discolorations and the cracks. But she'd been second guessing what everyone else's reactions would be, and to Holt there absolutely was a signal there. A pattern, a sign of intent. Even as she was downplaying and rubbishing what she'd found, he scabbled for the metadata, trying to understand what he was listening to. Then he called Key Crew together, or at least scheduled a remote meeting for when everyone was awake at the same time, and they all listened to what Esi had found.

It was maddening, because the signal was only there sometimes, and the remotes had found nothing, so whatever it was must be buried under who-knew-what thickness of dirt or rock. Being unlike any known transmission of

the Ancients, there was nothing legible in it. It didn't repeat, like a warning or a beacon. Every instance Esi had detected was different. Yet each one obviously fit with all the others and was similarly entirely distinct from anything, ancient or modern, in the *Enkidu's* library. Ship system analysis had drawn a blank when asked for comparisons. It was simply too different. Eventually Esi had quite the library of transmissions from the otherwise silent world below, enough to be as sure as anyone could be that they were picking up fragments of something crammed with information: a language, a code, *meaning*. Except to them meaningless, because it refused to yield to any analysis. Maddening, therefore.

By then a variety of curves were also starting to converge. The overall structure of the ship was as repaired as it was going to get, at the loss of only five hundred and forty-eight additional cargo units. Conversely, the state of repair of that small portion of the *Enkidu* currently being lived in, by the Key Crew and their teams, was deteriorating to the point that half Olf's efforts were devoted to just keeping it all going. Nobody had intended for even a new and intact ark ship to be actively lived in for months. That was what planets were for. And the *Enkidu* hadn't reached Imir in a state that qualified as either "new" or "intact." Gembel had a plan, however.

The Science second had risen to the challenge remarkably, Holt had to acknowledge. He was a terrible communicator—not just his jerkily impeded speech but a general inability to convey anything with an awareness of other people's perspectives or existing knowledge. But he could delegate the presentation work. Where his abilities *had* turned out to be gold dust was in the area of crisis ecosystems. The sort of thing that Old Earth had been left with, in the wake of the Ancients' disastrous wars and environmental poisoning, was now the absolute best they could hope to get going on Imir. *At least at first. Let's have some hope that we can make things better.* Gembel had a dozen plants and two dozen animals he could reliably recreate, grow and breed, and even prosper, in his Imirarium. Together these species, given a chance to gain a foothold on the planet, would provide the living basis for a colony. A small colony. *At least at first.*

With drone-work devolved to Security, Halena Garm had been running the planetside survey. After Esi's discovery, she'd ended up as the classicist's own subordinate, trying to track down the source of the signals with the surviving remotes and their inadequate instruments. In the end, all she could

do was call a virtual meeting and inform their various images, spread across the ship as they attended to their own tasks, of the best she could do. That she could just about narrow it down to a single region of the planet—a plain between the fluctuating banks of a river and some hilly uplands that looked, to the remotes scudding overhead, like a dead giant’s knuckles.

“Geophysics scans suggest maybe something buried under the hills there,” was her absolute best guess. “Except we don’t have either the power or acuity of gear to be sure. We’ve tried to signal back in a variety of ways, mimicking what Esi’s received, or just in the way we would normally hail someone, but no response. And it’s not a priority. Surviving is our priority. Frankly, let our children look into it, when we’ve built enough of a future to have children in.”

Holt let the thought sink in. That, if they worked really hard, they could carve just enough purchase in this barren world to make it a place in which there might be children, who might then endure another generation of it. And another. And another. *And better and better. More and more.* Except the thought still nagged, of something buried there that might hold... what? All the plagues and terrors of the Ancients, locked up and incompetently trying to tell them to stay away? Or some vast cornucopia of wonders, that would revolutionize the lives of those hypothetical children, if they could only get to it. A lamp full of obliging genies. All the paradise they had been promised, which the Ancients had never quite got round to releasing onto Imir.

And we looked for them everywhere else. There had definitely been Ancients, the old Empire, on this planet, or in orbit over it. They had started off the process to turn dead rock into a living world. Except they had then gone, leaving only rudimentary terraforming fingerprints on the surface, and none over it, not even a scrap of detritus circling Imir. They had disappeared and left their sacred task unfinished. Now here was the *Enkidu* with its systems failing and its diminished cargo, desperate to find somewhere to live that didn’t require continual maintenance every moment of every hour of the day. However many hours that might even be.

Go far, far away from the source of the signal, he told himself, but in the end he couldn’t make that call. The safe call. The proper decision a responsible commander should make. Because Esi had sold him on the promise of that fleeting signal, without ever trying to. Because he believed in wishes and magic, elder gods and *deus ex machina* salvation. What if, buried

down there, was the machina from which that deus might arise?

“I’ve been going through the cargo roster,” he told them. That was how he’d been taught, back on Earth, to refer to all the helpless frozen people they’d brought all this way. “I’ve produced a list of those to thaw out and prepare. People with skills. A first wave of colonists. Limited. We’ll need to feed them for at least a year on what the *Enkidu* can provide. That limits colony numbers. And after that, if Gembel has done his work, we might have a harvest.” The unfamiliar word, exotic on the tongue. “But we will need every pair of hands working at full capacity, and no more mouths to feed than that. The tolerances are very strict.” A shorthand summary of all the days and nights he’d spent—short days, short nights, but they still added up—compiling this list of personnel that would give the new colony its absolute best chance at survival. That would give humanity its best chance. From Key Crew to their teams, and from their teams to the wider draught of lucky cargo who would be allowed to wake and live, and work and die.

The rest would continue to sleep, until Holt and his chosen few had hacked out that future from Imir’s inhospitable surface, enough that they could wake and step down onto a planet fit for wider human life.

“I’m very proud,” he told them, Key Crew and their aides and his own subordinates in Command. “We’ve come all this way. And you’ve all worked so hard to make this even possible. Now the real work begins. Start waking them up. Start loading up the heavy lifter.” The *Urshanabi*, the one heavy lifter Olf had been able to patch up, after the carnage wreaked across their little fleet of launches in the process of just getting here.

“You’ve picked a site?” Halena asked, because Holt had been holding out on them. He didn’t want the inevitable mutiny his decision would spark. And he knew such a mutiny would be exactly correct, after which he’d have to backtrack and do something more sensible. And doom his children and all their children to a future of drudgery without hope of relief. Without even the outside chance of magic, every lamp and bottle empty, not a genie to be found.

So he showed them. They were to go down right near the source of the signals, hard up against the foothills. Good open land where Gembel could get his hand-picked plants established. Close enough to the river that they could try to seed some aquatic life, but not so close that the frequent tidal bores would scour the land clear of them. Perfect, unless the Thing—if there

was a Thing, if it even mattered—was a problem.

He looked at them, and they looked at him, and he saw they'd all been husbanding the same bad idea. The planet beneath them was 99.9-per-cent-recurring hard toil and no real chance of anything better, just a tiny fragment of a percentage point of hope. They'd all wanted to go for that fragment of possibility but, knowing it was a bad idea, had not said anything. And now he was granting them this hope.

Esi even said, on his personal channel, "Should have called the place Pandora," and later on, when they were together, he asked her to explain the reference. Some Ancients' story he'd never heard. It didn't change anything, and anyway, those old stories were no more than that.

PART 2

TO DARKNESS AND TO ME

Imir

Now

2.1 Liff

One night at the very end of Afterstorm, with the hills still resounding to dry thunder but the rains mostly stopped, Liff looks out of her garret window and sees her grandfather.

Old Heorest Holt, the ancient mariner in his coat with the copper-blue dye nobody uses any more. The night has turned it black but she remembers the colour. He's out towards the treeline, out towards the hills and the sound of thunder. The moon is full, washing the landscape silver. She can see him quite clearly, or any details the distance obscures she makes up for in her mind. The long face, the pointed nose; the grey square-cut beard nobody wears any more. A man out of time, standing there before the trees that hang on the hills like a dark tide, forever about to rush down and obliterate Landfall.

She could call to him, but that would wake the whole house, and she's supposed to be asleep. Supposed to have been asleep an age ago, save that she never can, not easily. Twenty-six years old—just on the cusp of adolescence, therefore—and she lies awake most nights gripped by nameless anxieties that seem to have become lost from far older people, who would have borne them infinitely better. Anxieties she can't talk to her parents about, or anyone, because it isn't what they want to hear from her. But perhaps she could have talked to her grandfather. He'd have listened.

She eases the shutters open all the way, heedless of the damp chill seeping in. He's looking back towards the house, the picture of a man about to do something irrevocable. His face turns, dead white in the moonlight; she feels a shock of contact.

She waves. The tall, thin figure on the edge of the dark lifts up a silvery-pallid hand and holds it high. A salute; a farewell.

Before she has time to consider the wisdom of it, she's out of bed, grabbing up her dress and her shawl. She creeps downstairs barefoot, so as

not to wake her parents or her uncle. Shuffles into her shoes, the wood and pig-leather cold and clammy against her bare skin. Unlatches the door and inches it open, battling the squeak of the hinges her father's always going to attend to and never does. Stepping out of the house, onto the rain-sodden earth of the place Heorest Holt had led them to. Above is the moon, along with its own satellite and, beyond them, the empty stars. The place Heorest Holt had led them *from*.

She was brought up on stories of the old man. That's what she remembers, more than the man himself. Everyone in Landfall has one. The tales aren't just the province of his actual family. Good stories, and not so good. Stories told openly, and those she's heard after slipping into places she wasn't supposed to, under tables after hours, listening to the drinkers in the Ricehouse. A name to conjure by. A name to curse. Holt, who paid terrible prices and made terrible bargains. Holt, who caused the war with the Seccers. The man whom the Watchers watched for, in their eternal, vengeful vigil. The last man alive who'd seen this world they lived on from the high places; all of it spread out below him like a tablecloth, they said, and she can't imagine it. Nobody can, and nobody will ever be able to, because that isn't something people do any more. Saw it spread out and heard a voice, perhaps, saying *All of this can be yours...*

Outside, the front door faces downslope towards Landfall, of course, the dark blocks of the town bulking out the horizon and obscuring the pale ribbon of the river. The old motion-sensor still hangs above the door but, growing up in this house, she knows exactly the arcs and angles that it covers, and where it is blind. The flickering lamp will remain dark as she sneaks out. Then she'll have to creep around the side of the house and the barn to see the hills and the forest. Every farmhouse ever built has its face to the town and its back to the wilds. As though nobody wants to chance stepping out and seeing something untoward before they're prepared for it.

She shuffles through the mud, past the front of the barn. Garm, the old razorback pig, rests there; she hears his breath change as she pads by him. No longer asleep but knowing her, so not about to leap up and start shrieking and charging around as if she's an intruder. She scratches the rough, bristly skin behind his ears and he grunts at her and settles again.

Everyone said that old Holt had gone odd after he stopped actually running Landfall and left the Council. That he claimed to hear strange voices

over the radio. That he started going on unexplained journeys. And that he was the only one who could go up to the cave in the hills and speak with the Witch who was supposed to live there. During the day, nobody really thinks there's a Witch, but after dark Liff *knows* there is.

When she clears the side of the barn and gets within sight of the trees, she's sure he'll be gone, and then she won't be certain if he'd actually been there or not, perhaps just a leftover piece of one of her dreams. But there he is, a dark slice of a human form before the far greater darkness of the wood. Waiting for her. Waiting to wave one last time before turning and walking and being swallowed by the trees.

She runs. Then stops. There is a wide swathe of grazing scrub, between the house and the trees, which is the moon's domain, and she can see every curl and dagger of grass, every shrub, sharp and colourless but clear in the light. The trees are complete darkness, though, as if they had reached up and touched the night sky where it hung between the stars, and invited that freezing void down to shelter beneath their branches where the moon can't reach. It's more than Liff can do to brave that dark.

Grandfather did. He braved the greater dark, the real dark that dwells between the stars, everyone knew. But that was why he'd left the Council. All the stories about mad old Heorest Holt said the dark got into his head, in the end. Or else it had always been there from his journeying, and he'd brought it down to them, sheltered inside his skull. Then maybe it'd escaped, unable to climb back out of Imir's gravity well, and gone to hide within the trees. Maybe that's where the Witch came from, whom nobody believes in and everyone knows is there.

The next morning she tells her father and mother and uncle, at breakfast, bold as the sun, about seeing her grandfather. The humdrum conversation of pigs and repair work and Council matters stills, and they stare at her, the sole child at the table.

Liff's mother wrinkles her forehead, exchanging that familiar look with her father. *Liff's said something wrong again.* "You can't have done, sweeting," she says, in that gentle, fragile tone her parents always use when they're worried about her, that can turn into shouting so very easily.

"It must have been a dream you had," from her father, even as he looks

over at her shoes, skewed by the door and still caked in mud.

Liff shakes her head adamantly, so that Uncle Molder snorts into his greying beard and makes that little finger-circling-in-the-air people do when they want to show someone isn't all there in the head. Liff's father glares at him—his brother and nobody's favourite relative, but family is family. For a moment she thinks the whole business will be forgotten against the resurfacing of one of their regular familial stress-lines. She'd rather it did, despite the shouting. She shouldn't have said anything. But her mother, all well-meaning, isn't letting it go.

“Sweeting, I don't think you can even remember him, not really. You've seen the recording of him, that's all. You were only very little when he died.”

Liff holds her face stiff so that nothing inside can escape onto the outside of her and just nods, like a machine. *Of course Mother of course of course.* But knows that she *hadn't* been asleep and that he'd *been* there, going into the woods. That he'd waved at her. And that he'd wanted her to know he was there. Heorest Holt, the old mariner, who'd sailed the stars long ago, the last living man who'd ever known another world to Imir.

With Afterstorm done it'll be winter soon, which means she has to walk all the way into Landfall to the schoolhouse and learn some letters and sums, as all the farm children do in off-season. Out of the way, while the adults fix whatever Afterstorm has broken, so that everything is braced for the new damage Storm will inevitably inflict. The new teacher is telling the class about their history; the first landing, Liff's own family mentioned by name. And, because when things bubble up inside her she can't always keep them down, she tells some of the other children she saw her grandfather. *Crazy Holt*, they call her, and *Crazy Holt* they called him. The old man who'd gone into the woods to talk to the Witch, which had made him crazy. Or else he'd always been crazy, and he'd gone into the woods to die.

One of the children, Yotta, has seen the Witch, she says. Not to tease Liff. To try and get people to stop talking about it. This means the other kids just tease Yotta instead of Liff, and that's better, maybe. After school, before she walks home, Liff talks to Yotta and gets the story out of her. How her father the woodcutter was out felling trees for someone's new barn when Yotta was sent to bring him his lunch. And there had been the Witch, talking to him. She could tell her father had been very scared. Perhaps he had cut trees too close to the cave everyone knew was up there, and the Witch had been angry

with him for it? There was a trail, Yotta said, leading all the way up to the cave. She'd seen it, right then. Her father had been standing on it with his axe and his motor-saw. It was clearly visible, going up into the hills and the trees, as though people were always using it to visit the Witch. Except nobody visits the Witch. Except, Yotta and Liff tentatively agree, maybe people always do. Because she's a Witch, so when there's a problem nothing else can fix, maybe that's when you have to see if the Witch is really there, because maybe she can fix even that. For a price. And everyone knows old crazy Heorest Holt had a lot of problems, which was maybe why he went into the woods to see the Witch so many times. Maybe that's where he was going last night.

That afternoon, Liff prepares for an expedition. The adults are all working on the barn, shoring it up from the inside, shout of voices and grumble of ailing machinery. They'll probably expect her to be within hollering distance, in case they need anything brought or held, or some other small help that her small hands can provide. But if they holler and she's not there, they'll most likely not think too much on it. She doesn't actually out and out say she's going to visit Yotta or some other girl, but she does talk about it when they're at lunch, so it's not quite a lie and yet it does a lie's work anyway. Then, once she has eaten, she gets a woven bag and packs it with everything she thinks she might need for going to find her grandfather. Because he's out there in the trees and she knows he's waiting for her. He's with the Witch and needs her to rescue him. Or he wants her to learn something. Or there's a gift for her. She keeps changing her mind about precisely what he had meant when he lifted his hand to her last night. It can't just have been a goodbye.

So she takes some of the hard, flat cornbread and a little dried sausage. She fills a waterskin from one of the rain-butts, because standing water will be good all winter, until Storm's done and the flies start to breed. She takes her father's clasp knife and battery torch. And last of all, she takes her book. It's the only book she has, and it's the same book most children she knows have, when they don't just have the History of Landfall that's so dull even the adults don't read it much. It's the book of stories someone printed, a generation ago, for Landfall's children; the one old Esi Arbandir curated. Stories brought from another world. Stories about magical things that can't happen; forest witches and talking animals. If she is going to meet the Witch, if there even *is* a Witch, then she's going to be prepared.

The brown-bound *Wonders of Earth* is the sum total of knowledge she has about how to deal with witches. She's read it three times. Witches always hate people and yet resourceful little girls can win their grudging respect. Witches are always very clever and yet very stupid at the same time, each in very specific ways. They are always tricking people but they can always be tricked. They are fenced around with rules that don't apply to normal people, but which they can't break, and if you know the rules you can command them to do what you want, as well as use their great powers at your whim. That is how the stories go, although sometimes they use words other than "witch" for the thing the story is about, such as genie or demon or artificial intelligence.

Yotta said the witch looked like a pale, strange woman, but Liff knows that doesn't mean anything. Witches are tricky that way.

And so, with all the adults busy, she sets out into the woods with her bag and her book, and searches for where Yotta had said the trail was, leading to the Witch's cave.

She's never noticed a trail there before, but it's where Yotta told her. Just a winding path that feet have made between the trees. Not many feet, not often. And, while Imir's impoverished ecosystem doesn't have much to obscure such things, the torrential rains of Afterstorm should have obliterated it, washing these slopes clear of anything without a good clutch of roots to hold it in place. Once, nothing had had roots, and these slopes were a constant battleground between erosion and what her teachers call the basal system; the things that were here before people came. And they are still here, making it possible for people and trees and pigs and rice and catfish and flies and the dozen or so other species to live on Imir.

The trees have done well, for a given value of "well." Imir doesn't really suit them. If they had a voice they'd complain that the summers are too hot and the winters too cold and the intervening seasons too wet and riven with lightning. Yet, without competition, they've spread to carpet these hills, a sparse-spaced conifer plantation now self-replicating out from its original site in every direction people will let it. Seeds flying with the wind from opened cones when Afterstorm comes, new seedlings taking root in any patch of ground that will take them, from here to the horizon and beyond.

They say her grandfather planted these trees first. Or that's what her family says, anyway, and old Heorest Holt is something of a lightning rod for *firsts*. She wonders what he thinks now, seeing that initial work spread so

greedily across the world. Not greedily, but desperately, like a parched man searching for water. The trees all look half-dead, compared to the pictures in her book, but that's what trees look like, Earth trees on Imir. Their lower branches are bare and the bark peels away from boughs like exposed bones. A carpet of needles is beneath her feet, busy with worms and beetles that digest it all and turn it into better soil which the next rains will try and wash away.

She is not allowed to go into the woods. In the stories there are beasts that prey upon girls who do just that, and sometimes they talk and sometimes they just devour. On Imir there is always a loose community of escapee pigs scratching a lean living on pine cones, but nothing more. What there might be are Seccers. Liff imagines gaunt, starved-looking men and women, come with knives and vengeance to do evil to the good people of Landfall. The threat everyone talks about but nobody's seen. *Because they look like us*, she thinks. *Because they're already here, pretending to be from the far farms, pretending to be us*. But that's Uncle Molder talking after he's been at the sake. Liff doesn't really believe it. Besides, if she's in one of those stories then she's the resourceful girl who can outsmart the talking animals and impress the Witch, and maybe save her grandfather from whatever trouble he's in and bring him home. That would make her mother happy and show Uncle Molder. And she would have a story to tell at the schoolhouse. She would be Liff Holt, worthy of the name she inherited from the first human being to step onto Imir. The very first off the shuttle, Captain Heorest Holt.

It's around then she realizes the path isn't there any more, gone so utterly and without trace that she wonders if she ever actually found it earlier. She'd never seen it before Yotta mentioned it, after all, not in all her wanderings. Perhaps it was no more than a runnel of rain, rather than a road into the deep woods, up into the hills, to a Witch's cave. There aren't any witches, after all. What there are, are lost girls in the woods. Unlike witches and talking animals, that's something the real world can stretch far enough to accommodate.

She stops walking, stands very still. For what it's worth she takes out the clasp knife and cuts an arrow into the nearest tree, telling her where she was when she realized she was lost, and which direction she was moving in. She looks for her own footprints but the carpet of shed needles has swallowed them smugly, the seething beetles the rain hatched out devouring them like

little corpses.

She looks for landmarks. There is one lichen-encrusted rock that the trees have grudgingly had to grow around rather than unseat. It is almost as tall as she is, rolled here by the rains an age ago and now a permanent resident, penned in by trunks. Other than that, the trees stretch off in every direction and, while some are whole and some are stormdamaged, the damage is so evenly distributed that no route distinguishes itself. She has only her carved arrow to cling to and who knows what direction she was actually travelling in, in lieu of a path?

Downhill, she tells herself. *Downhill is home*. But she finds her feet had been *taking* her downhill already, and the problem with hills is that they go up and down anyway. *Uphill*, she tells herself. *Uphill* until she can get high enough to see where she's going and where the real *up* and *down* are. She isn't panicking. She is Heorest Holt's granddaughter. He found his way all across space to deliver his people to Imir; she will find her way out of a wood.

So she goes uphill, but there seems to always be more uphill and she never gets high enough to see past the infinite perspective of the trees. She moves downhill again, but somehow there's always an uphill past the downhill, as though every step can only take her further from home. After a long time, and with the darkness slowly sifting down through the tops of the trees as evening draws on, she comes to a lichen-encrusted rock and her arrow mark carved into one of the trees.

Only then does she surrender and seek help. She drinks some water and eats some bread, thinking of the one story where children in a wood leave a trail of crumbs, and wondering what woods those were, without the ravenous beetles that are even now queuing at her feet for anything she might drop. Then she stands up and starts shouting, calling for help, just making a noise. Right now, even if the Seccers turned out to be real and turned up to catch her, at least she could talk to them. She could be the clever girl who tricks the monster into letting her go and falling into its own cooking pot, rather than the stupid girl who walked out into the woods and never came back.

Her voice echoes back from the hills, and is simultaneously muffled by the trees, but she continues to yell and scream as loud as she can; for her parents, for her grandfather, for the Witch and the roving bands of Seccers—aren't they supposed to steal wayward children? Why are they passing up on

this golden opportunity? Then she's hoarse and raw and very, very certain that her voice hasn't carried as far as home, or anybody's home. Only the beetles hear her, and none of them turns out to be the useful talking sort the stories are so fond of.

When she turns around, there are two people there.

She screams again, seeing them. They're only a couple of metres away, having snuck up on her as she made all that noise. Two people in long coats, as though they've been travelling in the rain. Strangers with sharp noses and dark eyes. One of them is standing, the other sitting on the rock with knees drawn up to chin, bringing their heads to almost exactly the same level. Their faces are very similar, brother-and-sister-close. She isn't sure which is which until the seated one speaks, sounding female.

"She isn't supposed to be here, Gethli." She cranes forward to pin Liff with her sharp, black eyes.

Gethli, her brother, has no expression on his face, compared to his sister's look of piercing enquiry. Liff has never seen a face quite that drained of all animation on a living person before.

"Gethli," the woman says again, eyes never leaving Liff, "she's new."

"Can we eat her, Gothi?" the man asks absently, and abruptly Liff is the girl in one of those stories, knowing that she will have to be very clever indeed to escape these two. Clever, because she knows just running won't help. And, even as she has this thought, the woman is off the rock and right at her elbow in a flurry of dark cloth. She examines the mark carved into the tree.

"New," she mutters, cocking her head on a neck that seems too fluid, staring at Liff. The man is at her other elbow, again very still after so sudden a movement. The woman starts picking at the sleeve of Liff's coat, at her back, fingers feeling the cloth even as she stares at everything she touches. Neither of them make eye contact with her, though they are constantly looking at each other.

"I'm going to visit my grandfather," Liff gets out. "I'm taking him these..." *torch, knife, book*, "breadcrumbs." All that's left of the crust she brought. And then, because the admission costs her nothing but pride, "I lost the path."

"Path," the woman echoes, looking to her brother again.

He hasn't actually looked at Liff once, but now he says, "Yes, the path."

You remember. From that time there was a path.” He sounds like he’s making a joke that Liff isn’t supposed to get, and his sister Gothi doesn’t seem to get it either.

“Path,” she says again. Then, with a shock, Liff realizes she’s been looking at the path all along. Staring at it but not seeing it amongst the needles and the beetles. A trail worn by a few feet since the rains. Maybe her grandfather’s feet, and now hers. But the dark is closing in, stealing between the trees and trying to cut her off, and she suddenly doesn’t want to meet the Witch, not even to save her grandfather. She wants to go home. And thankfully some clever girl has cut an arrow here into the tree, to tell her the way she was going, so she just needs to head the other way and it will lead her out of the woods and home. So long as she keeps to the path. So long as there is a path.

“Thank you,” she says, because the girls in the stories are always unfailingly polite, even to things that want to eat them. The brother and sister stand side by side, heads canted together, staring at her.

“You’re not supposed to be here,” Gothi tells her, not accusing but wondering. “Why are you?”

“My grandfather.”

“But why?”

I saw him. My teacher said his name. By now she’s tired and hungry enough she isn’t even sure which came first to spark this mad adventure. She just retreats from the two strangers, the Seccers or out-farmers or whatever they actually are, and heads back the way she came down the path, while she can still see it. Ten metres along, she turns to make sure they aren’t following, that they’re still standing there by the rock.

They aren’t. Instead, there is a harsh clapping of wings and two black shapes are rising up towards the black sky, dodging branches. Seconds later, they are repatriated with the greater darkness and gone.

She gets into trouble, of course. Kept in, chores and endless talkings to, as well as Uncle Molder’s snide remarks about what side of the family it came from. But it isn’t the first time and all things pass and life goes on. She made it back safely, that’s the main thing.

At school, the new teacher is still working bits and pieces of history into

their lessons, alongside the figures and letters that were just about the only things they'd been taught last winter. Any other learning was something your parents taught you, or whoever you got apprenticed to if you were that lucky. Children learned farm work and fixing, cooking and chores. But Miranda, the new teacher, is keen on history. She goes over the scraps of it they have left, and uses it for writing exercises. She tells them of Earth, and where they can look in the sky to see the brightly moving dot that is the ship their ancestors came from. And of course it's everyone's history and everyone's ancestor, but Liff is one of those whose grandfather was the captain of that ship, and the only one to bear his familial name.

Liff likes Miranda, who's young and energetic and seems genuinely interested in the children given into her care, unlike their previous teacher and unlike everyone else. Life on Imir grinds you down, with its hard seasons and its hard work. Doubtless Miranda has hard work of her own, year round, but somehow she saves up some enthusiasm for the winter school. So, after class, Liff stays on long enough to tell Miranda that she saw Captain Holt, that the old man is still out there. Maybe Liff could bring him to the class and Miranda could ask him questions about what it was like on Earth, all those years ago? Miranda stares at her and then smiles in that awkward way adults sometimes do when Liff talks to them.

"It would be grand," she says, "if that could happen. Think of what we'd learn." The light in her eyes outshines the wording of what she's saying and Liff looks on her even more favourably for that.

She sees the looks Miranda gets from other people, though. A young woman, unmarried, come to Landfall from one of the out-farms, hence no family in town. A woman who does things differently, teaches their children differently. Even though it's their history she's teaching, because there is only one narrow history leading to Imir, and even though there could be ways of telling it that Liff has never quite heard. It's not as though Miranda is talking about the Seccers, off beyond the hills or down the coast or wherever it is they're supposed to *be*. Who move around and menace the furthest of the out-farms and steal children, and whom nobody but nobody has ever really seen. *Unless they're here. Unless they're among us.* It's not as though she's talking about the Watchers, who only get mentioned at Midwinter and then never again, not under any circumstances, stop asking questions. Nothing controversial at all, and yet Miranda still gets those frowning glances in the

street, when people think she won't notice.

Instead of going straight home, Liff follows Miranda for a bit, feeling protective against the town's prickliness. It's her town, after all. If it's anyone's, it's hers. Built in the rusted shadow of the old shuttle, the *Urshanabi*, which brought them all down from that brightly moving dot she's seen in the night sky, exactly where Miranda said it would be. It's hers because of her grandfather, or else it's his, still, and she'll inherit it. She trails Miranda until she ends up at a big old barn-and-house at the outskirts of Landfall, a fixing shop where a man's tinkering away with some luckless farmer's clapped-out tractor. The engine is in pieces all over a tarpaulin. The man, angular, long-limbed, kneels there, examining each piece through a lens pinched between cheek and brow to keep it over his eye. Thin-fingered hands patter and tap at the vehicle's open chassis, all the wooden panels carefully stacked to one side so he can get at the innards. The delicate, ancient solar panels are carefully propped open like beetles' wings.

Liff knows that keeping the tractors going is a constant struggle for the handful of people who can still muster the knowledge of how to do it. Some of the ancient machines date back to First Founding, and these days Landfall's smiths often can't cast or hammer out replacement parts accurately enough. When something complex goes, like the battery, it has to be hauled out wholesale and scrapped. Replaced, if you're lucky, by a noisy, smelly biofuel engine. Or by a team of draught hogs if you're not. Yet this man, Miranda's housemate, has a mess of wiring out in front of him and he's splicing the metal strands to the solar panels in a way she has never seen anyone do before. He barely looks at his hands as they skitter back and forth, seeming to perform his technical miracles by touch alone. A skilled professional, then. Liff watches him go about his trade, lunging suddenly to pounce on this component or that, long pauses where his clever hands tap and drum erratically on the tractor's frame as he thinks what to do next. Then Miranda greets him. A little kick at the vehicle to get his attention; a wriggle of the fingers in greeting, reciprocated. Perhaps Miranda has found someone after all, and won't be so alone and so much of an outsider. Perhaps Liff won't need to worry about her getting those suspicious looks any more.

Except Liff finds someone who lives nearby, pretends that she has a father with a tractor in dire need of repair, and asks about the fixer. More dark looks. He's new, come in from one of those out-farms that couldn't scratch a

living. And yes, he's bringing trade to this part of the town; he's useful, he's clever with machines. But he's not local and they don't know him and that means they don't like him. Liff wonders if he and Miranda came in from the same failed out-farm, because otherwise it's two strange people meeting together in the same house, out of sight. She feels that would be worse, in the eyes of the long-time Landfall residents.

A clever little man, though. Able to breathe life into a dead machine that everyone else has given up on. Almost as if there's more knowledge in that squat head with its tousled hair than someone should have. The neighbours seem resentful, even, of the fortunate Afterstorm winds that blew him into town. Bring him a radio or thresher or call him out to your generator, they say, and Mr. Fabian'll have it working again. They don't like it, however. As though he's one of her storybook goblins that can spin straw into gold but at too high a price.

Midwinter means Remembrance. On the coldest, longest night, everyone ends up standing outside in the centre of Landfall, around the great gnarled trunk of the First Tree. And it *is* everyone, or it seems to be. Liff climbs up the porch of the Ricehouse and sits on its roof, looking out at a sea of heads. Clumped into families, neighbourhoods, trades, drinking buddies, whatever little cliques people naturally fall into. There's the smell of sausages and bacon on the air because, a few days before, there was a carefully judged slaughter of the swine herd, cutting the throats of just enough animals to ensure the town will have meat and tallow and leather, and the fodder stock will last the winter. Now some of that meat is sizzling on the fire—this is the feasting night when everyone, no matter how lowly, gets animal protein.

Liff scans over the crowd, picking out the families of the children she knows from neighbouring farms or from the schoolhouse. Many of the children are also perched up on anything that'll take them, for a good view. Some of them wave. Some make faces. Then she sees Miranda, who's standing up against the schoolhouse door. Mr. Fabian's next to her, and a big scary-looking woman who Liff thinks is his sister, come in from the same out-farm as him but spending most of her time hunting feral hogs out in the woods. Liff has become quite the expert on her teacher's social circles, out of an obscure protective streak. Except everyone Miranda spends time with out

of school hours seems to be some species of oddity or outsider. And that would be a worrying picture for anyone else to put together, the way people are these days.

Then everyone's kindling their yellow candles, passing the lighters round so that the crowd becomes its own star-field. Councillor Arkelly is up on the big grit block before the Councilhouse, reading out the old words. Liff reckons her grandfather probably wrote them. It's not something anyone has told her, but familial pride insists on it. Officially, they're just the words the Founders said, when they had their first Remembrance, just as there are other words they say for Thanksgiving, which comes roughly before harvest, around summer's end. But someone had to have said them or written them down first, and for Liff that means Heorest Holt, boldest of the star-voyagers.

Thanksgiving is all about being glad they got here from Earth, that the Engineers kept their ship working, and that the Ancients made Imir safe for people to live on—basically, life is hard but be grateful it isn't harder. Remembrance is different. Nobody really says why, and Liff listens to the words, or what she can make out of Arkelly's voice over the susurrations of the crowd, but they are obscure. They carry a burden that slowly stills the murmurs and the chatter, until by the end of the speech everyone is actually close to quiet. Then she hears:

“... Hold to the memory of our pledge, that there are things we shall not abandon. Though our travails be hard, we do not forget. They shall not grow old, as we grow old. There are no years nor seasons where they sleep. And when our long winter turns and, blooming, brings us to the summer of our power...” Old words, beautiful words, Liff thinks. Sad words, but she isn't sure why. She has asked, you can be sure she's asked. There isn't a question that enters Liff's head that doesn't exit her mouth. Only most of the adults don't seem to know, and that's par for the course for most questions Liff has. But, uniquely, those adults she's found who do know—and it's anyone who's served on the Council, her father included—won't say. They won't even really meet her eyes. Something bad happened, and the remembering of it is in spite of people's preferences, not because of them. It's a burden. Nobody wants it. And the uncomfortable solemnity of those who know creeps out into the crowd to infect all those who don't, until everyone's completely silent and still. One more year and no more answers.

That night Liff has her midwinter dream. She never remembers she's

going to have it, but when she wakes she'll know she's had it for the last dozen, fifteen years at least. Then by the end of the day, most likely she'll have forgotten it again, until it ambushes her once more the year after.

In the dream she's right there in the centre of Landfall, just as she had been last night for Remembrance. Only there aren't any crowds. It's the flat, clear light of a winter morning, dry as bones because they'll see little rain until Storm comes in sixty days or so. Nobody's about. Every door is hanging open. She could go into anybody's house right now, see the insides of places she's never explored in waking. And of course it's a dream, so she never thinks to, though she kicks herself for the missed opportunity the next morning. But in the dream it's not an opportunity. Having the town to herself isn't a good thing. She runs from place to place, impossibly fast, covering the distance from the First Tree to her home, from there to the school, to the Ricehouse, to everywhere she knows, and there's nobody. No sound, no animals, and the fields are barren. Nothing but the vacant, hollow buildings spread out from the rusted wreck of the shuttle that brought everyone's ancestors here. The buildings are all tumbledown as well, as though there haven't been hands to fix and mend for years. It's just them and the silence and the big empty sky. And her. Just her. The last. The horror of the dream isn't that everyone's dead, it's that she's still alive.

Then she wakes on the morning after Remembrance, as she has done every year for most of her life. The dream perhaps brought on by the words and the strange covert looks of the people who know, and too much rich food too late at night. And an overactive imagination, no doubt. She's told her parents about the dream but what are they supposed to do about it, exactly? Except point out that dreams aren't reality. Uncle Molder does that circling gesture with his finger again, and she stops telling people about her dreams. She's twenty-six now, which by the old classroom reckoner would be not quite thirteen on Earth. Old enough to be drafted in for any task on the farm, too old for stupid questions or paying any heed to dreams.

Except, when she wakes from the dream this year there's something different. Something she doesn't even recall noticing while she was running through the empty dream-streets of Landfall, but recalls in retrospect. That huge yawning winter sky, the flat grey sky of the dead year, hadn't quite been empty. She'd seen two dark dots casting overhead. Dark wings in a bright sky.

After Remembrance, Miranda moves on from history. Because, Liff realizes for the first time, they've *done* history. There isn't actually that much to tell. There's the pittance anybody knows about Earth, and there's the Journey, and there's the Founding, and then there are the generations from her grandfather setting first foot on Imir all the way up to now. Miranda even seemed to pad it out a little, adding details nobody had ever heard before; things about Earth that sounded more fantasy than history. Information about Holt's ship that Holt himself had never mentioned. Until some of the parents came to speak to her, one day after school, and she stopped inventing new things nobody had ever heard. So that's it for history, boys and girls. Somehow Liff never thought about that before, how shallow the foundations of Landfall are. Probably that "somehow" is rooted in the way all the teachers before Miranda just did letters and numbers and precious little even of that. She's learning that getting a proper education doesn't answer questions, it just teaches you to ask them.

Miranda's onto science now, in the back end of winter. She tells them stories about animals, though not the talking kind. She teaches about ecosystems and what does what, and why the flies that will be swarming gleefully come summer are important to the trees and plants, and why they need beetles, even though every child knows to stamp on every beetle you see in the barn or the house. Because the beetles are there to eat dead things and stop them piling up everywhere. But the beetles don't know that, and to a beetle your grain store is just a lot of dead things that need eating. Which is why we need spiders, Miranda tells everyone. Because spiders eat the beetles that need eating, and that's why you should never, ever, under any circumstances, kill a spider. She's very emphatic on that point. Then she goes further than this—because after a few days of this sort of thing, even the slowest kid gets the idea that these things eat those things, and those things eat some other things, and it all goes round and round, which is how the world works. Miranda starts talking about Why.

First off she talks about Earth again, because apparently that's not just for History class. "Who has the storybook?" she asks, and Liff's hand goes up, along with half the class. Miranda has the same book and she reads them a part of it, about a girl lost in a wood who's guided out by—Liff is braced for

it to be birds, but it's a fox, actually. A fox guides her out. "And who ever saw a fox?" Miranda asks. Nobody's hand goes up because there aren't any foxes. They don't exist outside of stories. Miranda tells them that's because foxes were an Earth animal which didn't get brought to Imir, like pigs and flies and beetles are Earth animals that did. There weren't many Earth creatures—*species* is the word she uses—brought over, or at least that the Founders successfully introduced. Literally every living thing on Imir is having to work hard to make sure the rickety scaffolding of the planet's ecosystem is maintained, so that people can have all the things they need. So don't get mad at all flies just because they bite you at Summer-end.

Liff takes it all in, and feels her head expand a bit. This seems perfectly sensible to her, and at the same time it has the curious tang of the forbidden about it. This isn't something any other teacher has ever mentioned, and it isn't something her parents were going to teach her, surely. She doesn't require this knowledge to help with the farm. There's a particular way of doing things, that the farm needs, and that's the way they do it. That's how the farm turns out the things they need, most of the time. But now Liff thinks about all the things she just accepted, in the stories. All the animals that don't really exist, and the things people do that nobody does. Like milking a cow, when everyone knows you get milk from pigs. Or having oxen or horses to pull your plough, when everyone knows that if you can't keep a tractor working you use gruntes to haul whatever needs hauling. And gruntes are just bigger, different pigs. You also get meat from swine, and leather, and wool. Garm, the razorback, who sleeps outside the house in case the Seccers come to steal food or children, is just a different sort of pig you don't eat or shear or milk.

Liff likes Miranda's lessons, but at the same time they make her uneasy, as though some inner part of her has been taken out and washed, and now doesn't fit quite right inside her skin. Because Miranda telling them all this somehow makes Imir and Landfall smaller. She takes "the way things are" and "the way things should be," which for all of Liff's life have been two mostly overlapping circles, and pulls them apart a bit. Then the world doesn't look so pleasant or perfect, no matter what all the adults say. And Liff sees those luring looks Miranda continues to get. They grow, day to day. And Liff worries.

After one morning's lessons she stays on after and helps her teacher clear

up the slates and the chalk, and asks about the birds.

“I’m afraid there aren’t any birds on Imir,” Miranda says. “That’s not one of the species they brought.”

“But I saw them,” as the two of them leave the schoolhouse. “In the woods. When I was looking for my grandfather. Like I told you.”

That awkward look again, like adults get, but from Miranda it cuts deeper. “Liff...” Striving desperately for diplomacy, Liff can tell. “You know you can’t possibly even...”

“Look!” Pointing up at the sky. Perhaps it’s just because she doesn’t want Miranda to finish that sentence, but providence is there for her, this once. Two specks, circling over Landfall, just like in her dream. Miranda squints up and her mouth opens to deny it, then shuts before the denial can venture out.

“Damn,” is all she says, and after that she won’t be drawn.

2.2 Miranda

Almost fitting in. Enough that she's been here for a season without quite appreciating she hasn't, after all, understood these people enough to pass as one of them. Miranda, the teacher. The spy.

They're on the lookout for spies, and that's just one of the things she didn't understand, which has set her just slightly out of sync with the rhythms of life here. Everyone, or at least most of the adults, keeps an eye out. On the farms past the edge of Landfall they have guns and they have dogs. Or not dogs. Big pigs with savage tusks and an angry squeal that goes right to the heart of you; intelligent as pigs and loyal as dogs, they'll set up a ferocious squealing racket if a stranger so much as pauses by the gate. Nobody talks about why.

And the Remembrance which just passed, as she stood awkwardly with Fabian and the others. Those curious words, that were obviously just The Words We Say, beyond anyone's real comprehension or recall. There wasn't a chance she could just go up to someone and ask, "So what is the cultural significance of all this, exactly?" because everyone knew. And if you asked the question, you would suddenly become one of those people they were all covertly looking out for, although nobody was saying why. She didn't want to cross that line. She didn't want to find out what they'd do if they found out she wasn't an *us* but a *them*. It was maddening, because nobody had quite said who *they* were. The preliminary education she'd had before arriving had hinted at a belief in a *them*, but she hadn't taken it particularly seriously. It was surely just an eccentricity of the locals, a folkway worthy of study. So the idea had passed under Miranda and the others' cultural radar for quite a long time. It was as though there was a bogeyman, a monster in the dark, a lurking presence out in the woods, and to name it would be to invoke it.

Seccers. The occasional chance mention. A curse, sometimes. She and the others had sat down in the workshop Fabian had taken over and discussed it.

Secessionists, was one possibility. Because just about ninety per cent of the feeling Miranda got from the whole situation was that there were other *people* out there. Right up until she got to the reason why nobody ever looked at the problem straight or talked about it openly. If there was a rival community of people out there, competitors for resources or space or political power, or opposites in ideology, then you talked about it. That was just common sense. You used the threat of them to weld your community together. You defined *us* by not being *them*. And to do that, you needed to define *them* between you, reviling *them*, and making effigies to hang up and all the rest of the circus. You did the same—and even more so—if there wasn't really a *them* but you wanted to pretend there was to fake that same community cohesion. But that wasn't how it worked here in Landfall.

Her fellows reckoned there wasn't a *them*. Because *they* would have to be able to hide, not only from the Landfall locals but from the preliminary reconnaissance that Fabian had run before they'd arrived. In open discussion, Miranda agrees. Privately, she wonders. Landfall controls only a tiny part of the world of Imir, after all. Plenty of room for a million Landfalls. Or perhaps Landfall has all the good land, all the livestock, all the rickety ecosystem bootstrapping that had given these people the ability to scratch out their agrarian living here. But if there was another whole community of people out there who *didn't* have those things, Miranda couldn't imagine a clash of peoples being quite this low key. Nobody seems to be prepping for warbands, or raiding parties, or the barbarian horde beaching longships on the riverbank. She'd eavesdropped on a hundred conversations at the community hub and drinking den they called the Ricehouse and people spoke about livestock that had gone missing, just one here and there, speculating whether the beast had broken a fence and run away, or maybe been *taken*. People cautioned their children about strangers and told them not to dawdle on the way home, but at the same time the farm children Miranda taught might walk upwards of seven or eight kilometres to get home and nobody suggested they needed an escort. There was no militia on the streets, and nobody launched hunting parties into the woods to root out vagabonds or bandits. And yet everyone was always eyeing anyone they didn't know, just a little. *Are they one of us?* Nobody actually levelled a finger, nobody pointed a gun. But it was there and, as she *wasn't* one of them, none of them were, it was a worry.

Landfall itself—meaning the cluster of buildings that had originally been

thrown up around the heavy lifter shuttle's final landing site, plus a sprawl of increasingly rough-built homes expanding out towards the hills—was moderately close-knit and would have been impossible to infiltrate on its own. But of course towns don't exist on their own, and the agricultural economy meant that more than half the colonists lived out on farms. These were scattered far and wide, each pitched on a little spread of land that was farmable, separated by dusty scrubland and plantations of trees doing their best on the poorer soil. There was plenty of movement in and out, younger townfolk leaving to try their hand at farming; less successful farmers coming into town looking for any other kind of work. Easy enough to say you were an out-farmer and tell them what your skills were. Someone would find a use for you. And, because all of Miranda's peers are somewhat vain and precious about themselves, to be frank, and nobody wants to be just someone's drudge, they've all ended up a little more prominent in the community than is likely prudent. Miranda is *the* teacher, for example, because those who are as comfortable as her with their letters are mostly the administrative body governing the town, and they have better things to do with their time than herd children. Fabian is already known as a good hand with fixing anything, making him simultaneously valuable and disliked, as though he is cheating somehow. Which he is, given he's drawing on a well of technical knowledge entirely denied his competitors. And his "sister" has mostly given up on the whole town business and spends her days hunting escaped livestock in the woods. Because when swine go mysteriously missing from the farms, people might mutter darkly about thieves but animals breaking fences is generally the explanation.

She hasn't met anyone who looks like a Seccer to her, but then she doesn't know what Seccers look like. According to those eavesdropped conversations, they could be just like a regular Landfallen. Just like Miranda.

That evening, after yet another awkward chat with Liff, she retires back to Fabian's place. He's closed the repair shop and is up in the living space above it, working on his current side-project. It's not quite a cover-breaking thing, but she worries he's pushing it. Nobody else in Landfall has any desire to build a telescope, after all. And, rather than cheat too obviously, he's done all the work by hand, using the tools available. He's been grinding his own

lenses and making his own casing. Miranda feels he's actually been enjoying the sheer physical *making* to the extent he doesn't quite remember why he wanted the thing in the first place. It's hard to do with human hands, which of course is an extra challenge for him to overcome. But tonight he's finally finished it, and has invited everyone for a little private party to celebrate. He's pointed it out of the dormer window set into the slant of the roof—a design now used as a precaution for when Storm starts, when it might snow more than anyone can plausibly deal with. She's seen where the original colonists' flat-roofed printed habitats were hastily converted in the same way to stop them being buried. But for Fabian, this simply means he has a good vantage point from which to look at the stars. Or, if not the stars, the nearer celestial bodies.

They're all inside when she arrives. Portia has brought food, because Fabian typically forgets all about things like mundane biological needs when he's in the middle of a project. Now she's sitting in one corner, ostentatiously sharpening a knife while Fabian rattles on nineteen to the dozen about optics. Paul has brought the children, all of them, and they're running wild about the room, each brandishing a different prize stolen from Fabian's toolbox. Paul himself is in one of his reveries, as per usual, neither engaging with anyone nor trying to govern his unruly horde. They make quite the picture, all together. If a native Landfallen wandered in right at that moment, the game would be up. No chance of pretending they were just four normal regular people born to the hard soil of Imir.

Portia's doing the eco work, so Miranda sidles up to her, weaving round two of the children who are charging about with hammers. "Birds," she says. "You said there weren't any."

"No birds," Portia confirms. Fabian is trying to explain something to her about focusing, and she flicks him hard on the nose, sending him off in a wounded sulk. They don't look much like brother and sister, their cover identities. The same long limbs and wide eyes with startlingly long lashes, but Fabian is skinny and fidgety while Portia is powerfully muscled and athletic, every inch the outdoorswoman. The locals give Fabian the side-eye while he's working, but they tend to melt away when his sister comes home. Paul, on the other hand... nobody knows quite what to make of Paul and Miranda sometimes feels the same way. Yet they have one of his paintings up in the Councilhouse so presumably he's doing something right.

“I saw birds,” Miranda explains. “One of my students did too, and has done before. I mean, of all the things that can travel long-distance—could there be a different ecosystem set-up somewhere else on the planet?”

“Seccers,” Portia muses. “Invasive species. We would see more of it than just a bird, though?”

Then Fabian, sulk over, makes a triumphant noise and calls everyone over for a turn at the eyepiece. There’s a bright point moving in the heavens, and Miranda wonders if that speaks to some deep-buried cultural node in his and Portia’s own cultural inheritance. Under the telescope’s magnification, she still can’t really see a great deal, tracking the dot across the heavens until one of the children wants a turn. But Fabian is satisfied, and besides, they all know what it is. They got to see it a lot closer, before they came down planetside on this little anthropological jolly. It’s a spaceship. *The* spaceship. The one that Captain Heorest Holt guided all the way to Imir from Earth.

Later that evening, after Paul breaks open a bottle of sake and Portia has the fire going, Fabian is still at the telescope, even though that piece of glittering history has passed beyond the horizon. He’s looking for something past the lambent glare of the moon and its moonlet, and Miranda feels she should know what, but can’t name it.

One problem with setting themselves up in Landfall is that—other than Portia in her capacity as loose livestock wrangler—they don’t get to see how life on the farms works much. Liff, therefore, represents an opportunity. Plus, Miranda is concerned about the girl, and likes her. Liff has an enquiring mind, laps up everything Miranda’s taught her, and yet there’s plainly something eating at her. Just as Landfall is full of things people aren’t talking about, Liff seems full of things that she can’t say. She’s more than happy to bring teacher home to meet the family, though. And once Miranda is actually there, they can’t really get out of inviting her in to have a little lunch with them. They’re partway through the winter repairs everyone’s busy with, making sure every structure and fence and tool is fit for use before the spring storms come—or just Storm, as they call it here. Miranda offers to lend a hand, and that smooths things over a little, but even then there’s the suspicious distance. They don’t know her, and Liff’s probably come back from school talking about all the new things Miranda’s been teaching the

children. Because she can't leave well enough alone and just give her charges the basic knowledge needed to run a farm's accounts and tally stock. She is living her cover and her cover is as a woman who wants to learn and wants others to learn too.

"Liff said..." she starts telling them later, as Liff's father and uncle try to get an ancient tractor running. It's a piece of brutally simple tech that surely dates back to the original planetfall, when the shuttle's printers were still working and they could just turn out parts to whatever specification they liked. They'd had enough foresight, the original colonists, to aim at making everything reliable and fixable. Things fall apart, though, and entropy is the landlord whose rent always gets paid. And so the tractor isn't working and neither man can quite work out which of the many replacement parts in this particular ship of Theseus is the problem.

"I've a friend in town," Miranda says, "who's good with these things. For a little of your surplus he'd have it running again. If I ask him, I can get you a good deal."

That endears her to them enough that she feels she can carry on to say, "Liff told me... she saw her grandfather."

"Her grandfather died twenty years back," Liff's mother says immediately. She's darning clothes, a task which Miranda is theoretically helping with save that she doesn't really know how. She'd rather have a go with the tractor, in all honesty.

Twenty years isn't as long as it sounds, with the circadian and annual rhythms of this planet, but it's plenty long enough that Liff shouldn't really remember the man. She notes that nobody felt the need to ask which grandfather, either, so obviously it's something she's been saying at home too.

"She also said..." How, precisely, to broach this particular subject?

"She says a lot of things," Liff's father states curtly, going at the tractor with a spanner. The uncle chuckles meanly and mother and father scowl at him, willing him to shut up. He's too fond of his own opinions, though, is what Miranda reckons, and he's going to let her have them whether anybody wants him to or not.

"That girl," he says, "isn't right. Needs to get her feet nailed down to the ground, is what is. All dreams and wishes, is that girl." With the implicit assertion that neither thing is much use for a life on Imir, which Miranda

finds piercingly sad.

“Molder,” Liff’s father murmurs warningly, but good old Uncle Molder is just getting into his stride.

“Had a dream with the old man in it, and next morning she’s swearing blind she saw him go into the woods. Next day she’s getting lost there until we’re rounding up a search party. Gone to find someone who’s been dead as nails long as anyone cares to recall. And good riddance even then, say I. He was cracked as well.”

“Molder!” from Liff’s mother.

“Someone’s got to say it.” A statement only made, in Miranda’s experience, by the sole person with any interest in saying a given thing.

“She also said she saw Heorest Holt,” Miranda says quietly.

They look at her as though she’s said something particularly dense.

“That’s what I said,” Uncle Molder agrees.

“You said her grandfather...”

“Old Cap’n Holt, her grandfather, right.”

“But that’s...” and Miranda bites down on the words because she abruptly feels the tilting point right at her toes, where this conversation would stop being even the rather strained-but-polite thing it is and tip her into places she doesn’t want to go. It’s obvious that this is another little cultural detail she hasn’t assimilated properly. *Grandfather* doesn’t mean the direct parent of a parent but just some past generation, grandfathers all the way down. Except she recalls *twenty years back* and that’s...

There are explanations. But they would change everything about what’s going on in Imir. Maybe even who the Seccers are.

Later, when she goes to say goodbye to Liff, the girl scowls at her ferociously, and Miranda realizes she was doubtless eavesdropping on everything that was said.

“I just wanted to help.” Feeling wretched at having shopped the girl to her parents in the name of covert anthropology.

“You don’t believe me,” Liff tells her, face red—anger not tears. “You think I’m—” and she makes a gesture Molder used, a finger pointing up and swirling. *Crazy*. Except the direction of the finger makes a connection in Miranda’s head to the sky-crossing point of light and Fabian’s later star-searching.

“Your grandfather,” Miranda says. “Liff, look,” and then inspiration

strikes, and she fishes in her winter coat's many pockets until she finds what she's after. A little piece of cultural memorabilia she abstracted from the schoolhouse to show the others. A printed image in colours that time and sunlight have faded to a cuprous, undersea haze. Heorest Holt on the ramp of the shuttle with a handful of his fellow founders. A strong-framed man with a neatly trimmed beard and a long nose, craggy brows over awl-sharp eyes.

Liff's expression, seeing this, is unrepentant. "I saw him," she said. And then, because Miranda has run out of ways to ask questions and she takes that as mere disbelief, "Nobody believes me but I saw him. He went into the woods to see the Witch, just like he used to. He's there now! She's got him, and nobody will help me look for him. They just think I'm crazy. But he's there and she's there and there are..." Now she stops, with her mouth crammed full of things even she won't say for fear of *knowing* herself mad. By then her parents have come out to see what the shouting's about. They give Miranda some very unkind maybe-you-shouldn't-come-back-here looks, and it's time to leave.

2.3 Gothi/Gethli

We are studying beetles.

We are not supposed to be studying beetles. That is not what we are supposed to be doing at all.

But there are new beetles and it is the new things that attract us.

Not the point.

Yet these beetles demand my attention and you are helplessly pulled along in my wake and so we are studying beetles.

Sigh.

The speciation rate of beetles is quite remarkable and should serve as a metric for the amount of time that has passed since the foundation of the original colony here on this world, designated as Imir. Originally we surmise that a single species of beetle was released as a decay agent to supplement the efforts of the single species of multipurpose fungus that acts both as a saprophyte and also as a chemical conduit between the root systems of the plants. However, speciation into a vacuum can be surprisingly rapid and, even in a handful of human generations, we observe the arising of distinct species or sub-species of beetles exploiting very slightly different niches. The very blank slate state of this world's ecology is a mill of newness and it is fascinating.

Why it is that beetles in particular should be prone to explosive speciation is worthy of speculation. We posit that the combination of being able to endure abrasive environments and also travel great distances on the wing may be involved. One species has become as large as the mice we remember from home and is a serious pest of stores for the human colonists, who have no cats.

We profess an inordinate fondness for beetles.

The bluish-green ones, in particular, are delicious.

That is not it. We are scientists. We are doing science. Though we wear

black coats, not white.

Given all proper reflection, we cannot possibly claim to be scientists.

We are a scientist between us. That is how it is. I investigate, you analyse.

Currently I am analysing these delicious beetles which have speciated on a world without aerial predators. And are therefore very poor at defending themselves. But, delectable as they are, this is not what we are supposed to be doing. She will be angry with us. This is what we call mission creep.

There is a world of newness. Shiny things, Gethli.

Sigh, Gothi. Sigh. She will be angry with us.

I can readily bring to mind past instances of this, naturally. And yet all the novelty of the world outweighs them. The future's yours to cope with. I'm all about the now.

Sigh.

Now we're getting a severe dressing down and I don't know why you didn't warn me. She's not interested in the beetles at all.

No.

Or the ecosystem web we've drawn for her. You'd think she wasn't a scientist. We've brought her all these shiny pieces of knowledge and she's shouting at us about doing our jobs and it all being an emergency and being trapped here.

If only someone had warned us.

This isn't why we came on this expedition. We wanted to experience the new, not get shouted at by an old witch in a cave. And it's always the same shouting, even though the mistakes we are making cover an entire range of errors. As though not doing the right thing and doing a different wrong thing were the same thing, which they aren't.

To reluctantly take your side for a moment, she doesn't understand what it's like, given she spends all her time in a cave looking at shadows on the wall. We can't not pick at the new things. It's how we're made. Or at least you can't, and I'm a hostage to whatever grabs your interest. All the shiny, shiny new things of this world. They change, too. And somewhere, in all of that, is what we're supposed to be looking for, but she doesn't understand that we have to catalogue and experience all the newness, and make it known and understood. Only then can we detect the actual anomalies she wants us

to find.

Was the word “anomalies” ever used in our instructions?

Was it not?

“Crewmates” if I recall correctly. And I always do.

I think you’re right.

Lots of words like “crewmate” and “emergency” and “lost” but what she means by any of them is beyond me. Just noise noise noise. I mean, it’s not as if we really understand any of these words, do we?

I can make an educated guess.

Of course you can. You’re half of a scientist. But anyway...

Time to go.

We should sample some of those yellowish-looking beetles. For science.

That is not why we must go.

But even so...

But we should, yes. It is my considered opinion that they will taste slightly bitter. A palate-cleanser after all those blue ones.

Then we will have learned something new. We will have another piece of the world mapped out. And that’s important, even if Herself doesn’t understand. How else can we learn save by experiencing each new thing and eliminating it?

Literally, in the case of the beetles.

You’ve made that joke before, Gethli.

That is the difference between us, Gothi. I can enjoy the same joke twice.

You are my burden to bear, Gethli.

We are each half of a burden, Gothi. And, so that we do not burden the patience of She Who Sends Us Out too much, let us fly over the town first, this time. In case we spot them. We have catalogued a lot of the human activity on Imir, between beetles. Perhaps they will leap out at us, out of place as they are.

And yet they don’t. It is as though they aren’t there at all.

They are hiding, is what it is.

From us?

From the native population, from within the midst of that population, by appearing to belong to that population. Much like a beetle that looks like bark or a spider coloured like droppings. While this serves their primary purpose admirably, it also conceals them from us and makes it that much

harder for us to pick them out. Which will result in yet more dressing down from Herself when we go back and report that we haven't found them yet.

Well then she can look for them herself, can't she.

That, Gothi, is what I'm worried about, being possessed of the foresight you lack. I don't really want to consider just how chaotic things will become if Herself takes an active hand. Then there'll be some newness, and it won't be the good kind. There's watching the ripples you get when you drop a pebble into the pond, and then there's heaving a dirty great rock into the middle of it. We need to start anatomizing the human community and its outlying satellite settlements in greater detail. A census. Find those anomalies.

For which we need a baseline, which is problematic. It would be easier if we could start from the beginning again.

Unfortunately I suspect it's going to get worse before it gets better.

There you go with your looking-at-the-future again.

One of us has to. Literally. And now...

Black wings in a silver sky, circling forever over a small town in the grip of winter, searching.

PART 3

THE WORLD TREE

Miranda, Before Imir

Recently

3.1

I

Once upon a time there was a world discovered by humans from Earth and they called it Nod. It was a living world, and one of its species was a kind of microbial culture that was very, very interested in these new beings which had come to visit. Each of the humans was like a universe, and so the culture set out on a great voyage of exploration, until it found the human brain and discovered what thought was, and memory, and the wider reaches of creation.

And some unpleasantness ensued after that.

II

Once upon a time there was a world discovered by humans from Earth and they called it Kern's World. It was a dead world, without any species at all, but they terraformed it to within an inch of its life, seeding it with a thousand thousand Earth species, just as they planned to do to Nod but didn't. Just as they planned to do to a whole glittering necklace of worlds across those parts of the galaxy proximate to Earth. And then that civilization of humans fell into ruin and destroyed itself, ensuring that nobody, not anybody anywhere, could survive. The terraformed world did survive, however, in the absence of almost all the humans. And on that world a handful of species gave rise to a civilization, with a little help. They were primarily Portiids: evolved jumping spiders.

III

Once upon a time there was a world called Earth, by the humans who lived there, and they developed a civilization the slow and old-fashioned way, and went to Nod and Kern's World and other planets and terraformed them to varying degrees before their civilization self-destructed. And then, much later, their descendants found space again, escaping from a world poisoned by war and industry, to hunt down the places their ancestors had prepared—or so they hoped—for their eventual arrival. And they found Kern's World, experiencing a rather tense moment with the Portiids, before the spiders brought them around to a more empathic way of thinking. They also met Kern, of Kern's World, who had once been a terraformer and was now an electronic intelligence, having ended up as an artificial intellect formed by the interactions of an ant colony; because that was how the Portiids did things. Eventually, the humans and the Portiids and Kern set out to visit the rest of the universe, starting with the places where those long-ago humans had been.

IV

Once upon a time there were two worlds, Nod and Damascus. You've heard about Nod, and on Damascus the terraforming effort threw up a force-evolved species of octopus that took over after there were no more humans. Then the ever-curious inhabitants of Nod ended up on Damascus and there was a regrettable incident that left the remnants of the Octopus civilization existing purely in orbit, and we're telling you this in a spirit of free and frank disclosure. Mistakes, on a very grand level and with terrible consequences, were made. We didn't understand. We lacked, in a very real sense, perspective.

And once upon a time, a lot later on, Portiids and humans from Kern's World came to Nod and Damascus. Through a spider sense of connectivity and a human desire to communicate, as well as a certain amount of sacrifice on Kern's part—or part of Kern, because she gets everywhere, frankly—they were able to reach détente with the compound organism from Nod. To renegotiate the relationship between the Nodan culture and the universe, from one of parasitism to one of omnisymbiosis. Everybody's friend. At the same time, there were certain technological developments the Octopuses had been working on that proved useful to a burgeoning civilization of intrepid

explorers, and everyone got to go on an adventure that we're all still on. Meaning "we" our civilization as a whole, and "we" the currently forming crew of the good ship *Skipper*, as well as "we" singular, this "we" who's telling you all these abridged stories. Because although we tend to interact with our fellow crew and the universe as a succession of "I's, we are at heart a "we."

V

In our current incarnation we are Miranda.

Miranda was a Human, capital H, a descendant of the people from Kern's World. She wanted to explore the universe and—because she lived within a civilization that had access to Octopus-conceived technology, which could squeeze itself through the gaps in the theory of relativity—that's exactly what she did. Then she came to a point when she needed to be in more than one place at a time. She and her crew were due to leave a site of interest, but she wanted to stay around and study it too. And so she came to us.

They call us an Interlocutor, because we are the communion between all things that have decided to become a part of us. We are the thing from Nod. And though we are obviously only a small part of the thing from Nod, we are in a certain sense all of it too. Its compiled experiences, all the things it met, all the minds it mimicked, up to the point when this part of us went our own way. They are us, and we can be them. If we reached a long, long way back, we could even dredge up some very old names and faces indeed. The first humans we ever met, back before we understood what being human was. But they were none of them willing parts of us; we co-opted them under duress. We don't like being them unless we really have to. They're not happy. These days we have volunteers to join us on our adventure. Miranda volunteered, and so we learned her, which meant that when we left, we carried her with us too. This is what we do. We record and copy the mental state of our hosts and store it away within the atomic-scale hereditary information inscribed on the walls of our cells. Within us is a multitude, and these days, rather than riding along inside someone's living brain, they can grow us a body to our specifications. So right now, we are adopting the manner and mindset of the Miranda we knew. And, for us, that is enough to make us Miranda.

The original Miranda may well still *be* a Human, exploring with her own crew, somewhere out among the stars. Ours is a disassociated and strung-out culture, a loose net of self-sufficiencies barely qualifying as a civilization any more. The planets we have left behind are still there, and people still live on them in their conventional and generational ways. But *we*, the ever-curious, skip between the celestial spheres and, even though we thumb our noses at relativity, it all takes a long time. We can't know if Miranda—the one who went on to have new experiences after she gifted her experiences to us—is still alive, still exploring, settled down, or long dead. She is our wave-form sister, who might be anything, up until the point when we meet with her again, open the box and discover what's inside. That is how our society must work now. We travel because we wish to find out. We call our discoveries across the stars, each to each. We come running at the promise of something new. We seek for every possibility of life and sentience, because the universe is vast and cold and mostly empty, and variance from that void is to be treasured.

We are Miranda when we want to be—when we remember her, we are her, and she lives in us. Just as, if we were to stretch our mind back very far indeed, then the terraformer Erma Lante might stand before you here, or at least the incomplete Erma Lante that we have of her. She was one of the first minds we wore, and wore out, over a long time. Back when we would have devoured all the universe for just a grain of novelty, and then wept because the ruins we had made were scoured of entertainment. That was before we knew what we were doing, and how other entities outside ourselves worked. Back before we understood that there were better ways.

We are a thing of understandings. When we were a thing of sentience but no understanding, we did things we will not repeat. All innocent, in a way, but sometimes that's no excuse. Now we follow those better ways of discovery and experience, ready to embark on whichever mission the *Skipper* turns to next.

3.2

Miranda, then.

Because they chose to manifest as Miranda, they had a human body. A female body, engineered to match the remembered self-image of the Miranda whose persona they were currently inhabiting. They had tried other faces. Earlier, when the bioengineering had been cruder, they'd taken what they could get on the body front. There had been a disconnection, though, on seeing the wrong reflection. They could be Miranda, more immersed in the role than any method actor, right up until they saw the wrong face in the mirror. While that might be an unpleasant experience for a human, for them it prompted a fracturing of the self. Because there was a world of difference between what they truly *were* and the woman they were mimicking, and to be Miranda was to walk a tightrope between those poles with no safety net. Seeing another face, where that remembered woman's should have been, shattered all their careful internal pretence. They lost who they were supposed to be and older instincts resurfaced. As a result the reservoir of their true nature, secreted within the vat-grown cadaver, had devoured quite a large section of that body's brain, converting it into more microscopic explorers, before it remembered who it was supposed to be and why they didn't do that any more.

Miranda's face was round, and her body stocky and compact, broader than the Human average. She had large, dark eyes and black hair that—they remembered—she liked to wear long and tied back. They could recall—as though they themselves had been there—what the woman's preferences were, as well as attitudes and pleasures. They emulated them, feeling the echo of that happiness, and did their best to make it theirs. They would ask Portia to comb out their hair for them, and relish the complex physical sensations it produced, and the second-hand memories it evoked. It was an experience and an adventure, just as much as exploring the cosmos was.

Portia was their friend and crewmate, a spider with a body the size of a human head and an intrepid, fearless nature. She was one of those who didn't blink—not that she could blink, of course, but the Portiid equivalent was a defensive raising of palps—at Miranda's true nature. There were more and more who'd come to trust living alongside the Interlocutors and the Nodan parasite, even lending themselves to an ever-growing library of recorded personas. For Portia, who liked to take risks, it was the equivalent of backing up her life and understandings, in case anything happened to her.

The *Skipper* was a small vessel, currently preparing to take on new crew—or maybe-crew—from the planet below them, and then to depart on a new voyage of discovery. They were going to be the first arrivals at a pristine world. Miranda could feel the swell of excitement within her at the prospect, and it was both *their* thirst for adventure, and the original woman's love of discovery. Why else venture into the universe, after all? The *new* was the one great currency of a civilization that had developed beyond a need to scabble and endure hardship. The entity from Nod had been driven by such a lust for novelty ever since it looked out through human eyes and understood that the world it had always known was no more than a drop of water. Miranda, the Human, had turned away from living a comfortable life of family and peace on Kern's World. Trading it in for the uncertainties of interstellar travel and a life lived outside any one planet's time frame, part of the grand diaspora of knowledge-seekers. The same spirit had led her to gift her nature to the things from Nod.

One central chamber made up the *Skipper*'s crew space most of the time. The vessel itself was mostly wings right now, vast filmy expanses turned to the local star to drink in its energy. At the heart of that butterfly expanse was a bead, and the bead was where they all lived and worked and slept. There were also engines, of course: both the reactive kind that used brute Newtonian force to move them from place to place, as well as the Octopus-invented drive, which would take a volume of space around them and slip it through the universe faster than light could travel through actual space. The ship could reshape itself using Portiid-pattern organic technology, moulding and budding and even splitting if required. In its current state there was a single central chamber with private alcoves off it, though precious little actual privacy. There was no gravity, so the walls were festooned with straps and ropes and loops that drifted and swayed like mermaids' hair. Everyone who

chose this life became very comfortable in zero-G. Bodies like Miranda's were modified and engineered to maintain bone density and visual function, whether they were inhabited by real humans or merely by alien facsimiles.

She was aware that the difference still mattered, to some. Just as, back on Kern's World, there were probably still reservations of humans who hadn't become Humans, and couldn't get used to having spiders for neighbours. There were Humans in the great diaspora—spiders too, and especially many of the Octopuses who had the most history with the Nodan microbial culture—who looked askance at entities like Miranda. *This* Miranda, not the original. She wasn't entirely trusted, and it hurt, but it was something she had to live with and hope would pass. She was, after all, eternal by her very nature. She was a thing that replicated and grew and died in mere days by human reckoning. Death, in becoming a constant companion, had lost its sting. What she was formed of was ephemeral and fleeting. At the same time, what she *was* could go on forever, taking with it as many other minds as trusted her with themselves.

One day it might all be us. It was something others of her kind had said—meaning others of herself, which had split off in times past and would be separate individuals up until they re-joined a larger colony. The distant future of the diaspora could reside entirely within them, the archivists and collectors of minds. There were Humans and others who fretted over exactly that, not able to rid themselves of worries about a malign plot to take everything over. Miranda, from the borrowed point of view of the Miranda she was mimicking, could understand that. And, from the point of view of the thing sitting behind Miranda's borrowed eyes, she knew it might have gone that way, and that it still could one day. It wasn't what she wanted though, and she hoped her preferences were a reasonable touchstone for her species.

They had all come out of their alcoves, away from their private research or games or rest, to welcome the newcomers. Which was to say, to be incurably nosy about them. But then, why take up this life if not to be curious? Miranda took her place amongst them, standing near the curved wall that Portia was—from her current orientation—halfway up. The other two spider crewmembers were across the far side. Portia's longtime partner-in-misadventure, Fabian, was another of Miranda's friends. Conversely, the senior female on board, Bianca, was leery and standoffish about her. Miranda hoped that was just because their acquaintance was relatively recent. Bianca

was the nominal leader of their expedition, although command structures amongst the Portiids tended to be web-like and fluid, as befitted those who'd created them.

Paul, a large Octopus currently mottled green and beige, was still half within his alcove, the skin above his protuberant eyes bristly with wariness. He was another old associate of Miranda's. They and the two spiders had served together on several ships, a little clique of acceptance that shielded her from the worst responses to her true nature. She watched his tentacles undulate and coil. His modified gills flared and fluttered, artificial linings sieving oxygen from the air. And, because of who she was and the gifts she had been given, she could read the thoughts there. The emotions written on his skin, the instructions and calculations expressed by the complex motions of his limbs. She was the polyglot, who understood every mode of communication like a native. And it would be her job to work most closely with the newcomers about to join them.

The penultimate member of the crew was another Human—or rather, the only true Human. His name was Jodry, and he and Bianca had come as a team. Miranda knew he was going to be difficult. Nothing had been said when they were introduced. He'd been as polite and professional as anybody could have wished. She knew the signs by now, though. In a spider it was a certain jitteriness in their movement, translating as a kind of clipped curtness in their speech. In an octopus it would be written in strident colours on their skin, because concealing their emotions was an effort they seldom wasted energy on. In a human, though, she looked for the thinned lips, the hesitation before any physical contact, the reluctance to properly meet her gaze as though fearing what they might see through the windows of her pupils. Jodry didn't like her. Or rather, he feared what she was, and—with her Miranda hat on—she absolutely understood that. Miranda had once felt that fear and revulsion too. When she'd first comprehended what had come from Nod, she'd been horrified. She had moved beyond that though, and eventually acceptance had graduated to a willing partnership. She'd allowed herself to be copied into that living library. But Jodry was still mired in repulsion, and she didn't know how she could help him. She could only hope his attitudes would erode over time, and that in the interim they would both be professional.

The last member of the crew—the last member of everybody's crew—

was Avrana Kern herself, of course.

The world below, that had been the subject of extensive study—the world they were about to leave—was known as Rourke. The terraformers who had arrived there thousands of years before had christened it, and its current inhabitants continued to call it this; because they were still speaking a recognizable variant of the same language, as well as using a computer system comprehensible to the explorers' own. Meaning one that could be accessed by that selfsame Avrana Kern, former terraformer, who could still dredge up some functioning memories of those lost times.

Rourke was one of that necklace of worlds Miranda's culture had sought out across the nearer reaches of the galaxy. They had a manifest of the old terraforming sites, those peers of Kern's World and Damascus/Nod where the original human spacefarers had gone to remake creation in their own image. Some of those worlds were barren, and some were violently inhospitable because the terraforming had gone dreadfully wrong. Others simply couldn't be found, gaps in their records leaving them only with the knowledge that *somewhere* out there a handful of worlds existed that might harbour Earth-derived life. Or, based on percentages to date, more likely not.

Rourke was different. Rourke had a thriving civilization that had preserved a great deal of what the terraformers had been. It was not in any way the world the terraformers were supposed to have brought about, but it endured, as did its people. For a given value of "people" and a given value of "endured."

There were no humans on Rourke. There was a theoretically sentient species, however, and when the *Skipper* and other vessels had arrived in orbit and started transmitting, the textbook responses had come back. Literally textbook, exactly as Avrana Kern would have wanted her subordinates to reply. Considerably more textbook than she could actually recall, in fact. The inhabitants of Rourke were apparently more purist than she was.

Something had been curiously off, though. The responses all came over so hollowly pristine that Miranda, among others, had asked whether they were dealing with another ancient AI, some kindred process to Kern. Miranda, bursting with questions ingrained into the very genomes of her alien cells, raised the point that the planet's denizens were asking nothing. An alien

visitation had come to them and they were just going through the motions.

The *Skipper* had asked for permission to send an embassy to the surface, a request that was formally processed and affirmed. Miranda and the others had gone down expecting cold, dead halls and an impersonal voice resounding from the walls, holograms and malfunctioning subroutines. Not a rookery.

They were greeted by thousands of birds. Hunched black shapes perched in the chill, dense air, half-obscured by curtains of blowing snow. No clothes, no tools amongst them. No humans. Just birds. For a long while nobody said anything, Miranda and Portia in the doorway of the shuttle and Fabian ready to lift them out of there if things went wrong.

Then the flock had descended on them in a great chaos of wings and they'd closed the doors. But they'd ended up with the outside of the ship covered with raucous, shrieking birds that picked at the little globule of a shuttle, investigating it ferociously. Some of it they tore up and other parts they tore out. Fabian—not the most courageous of spiders—desperately sent out a call for help. Because *now* the tools had appeared, and some of the birds were distressingly handy with cutting torches and saws.

They'd remained under siege for the best part of a day. By the end of it, their ship had been reduced to parts, anatomized and laid out with apparent intelligence. Two-foot-tall birds had been strutting in pairs along the ranks of pieces, inspecting them and croaking to each other. Others had hauled in mobile terminals and appeared to be recording the results of their destructive research. Miranda and the two spiders were ringed by a cawing, jabbering host of Corvids pecking and poking at them with great interest. The drones that the *Skipper* had sent down had met the same fate as the ship. Everything had looked very bad.

During this fraught time, Kern—some of her—had been investigating the computer systems open to her on Rourke, which were most of them. The birds didn't care much for security, apparently. Everything was accessible and unlocked for editing. *That* led to a clear enough picture of what was going on, so that she was able to co-opt a projector and appear in person, or at least in the person she remembered, the angular and exotic-looking woman with the snow-pale skin and sharp cheekbones.

Over the next day, Miranda and the others got to watch the birds reconstructing their ship, perfectly. Pairs of Corvids with a variety of tools puzzled over the Portiid technology, assisted by the schematics Kern had

provided them with. In fact, Kern explained later, the schematics were all that they'd needed. Once they appreciated the pattern, they had been able to reverse-engineer the science themselves.

“Genius birds, then?” Miranda had asked her, and Kern had rubbed at her insubstantial chin and said, “It’s not clear that they think at all.”

3.3

Between leading the old terraforming programme and becoming the workhorse operating system of a panspecies coalition, Kern had gone through a variety of transformations. From a living woman to something smeared unevenly across dying meat and failing circuits, to an electronic ghost of herself that believed it was real, and to a consciousness replicated by the Portiids on their own mainframes, which were composed of millions of insect interactions. Whether what they had now was truly the woman who had once lived was a point that had gone beyond technology into philosophy. Miranda held within her a partial record of some of Kern's peers, though, and the current entity retained an acerbic personality those ancient terraformers would definitely have recognized.

Avrana Kern could have had a body if she'd wanted one. The *Skipper's* instance of her tended to shun them, loudly proclaiming their inconvenience compared to an anywhere-and-everywhere virtual existence. Miranda suspected she protested too much. Miranda had within her the memories of a man whose body—and specifically his emotional life—Kern had once co-opted, which escapade had got out of hand. Kern did not trust herself. In her spectral manifestations the Kern-ness of her was limited by her substrate, and she obviously felt that was for the best.

Miranda nearly asked, once, why Kern didn't just manifest in a Portiid body, given the woman was so critical of the little-h humanity that predated contact with the spiders. She was wise enough to keep that suggestion unspoken, however. Kern's relationship with her original species was complicated, and there was a lot of hate there: after the betrayal of her mission, the destruction of her work, the end of her civilization. At the same time, one of the chief parts of the original to survive was her indomitable sense of self. She was who she was, and would accept no physical substitute. Kern was still Kern. An endlessly replicated and yet still relentlessly singular

entity.

Avrana Kern, then. Who didn't really remember how it was back in the old terraforming days but tended to believe that she did, until she was called on to give specifics. The irascible dethroned goddess of the Portiids; the genius of the ancient human drive to populate the stars; the computing substrate that the spiders entered into partnership with. There to make things happen, but never short of an opinion of her own.

She manifested in holographic imago as a woman whose face spoke to ethnicities and genetics no longer in circulation. A little like Erma Lante and the others of that era, should Miranda cast her mind back down the well of memory. Not so much like Miranda or any of the other current Humans. But then there had been a long time and some constricting genetic straits between Kern's era and the point when humans went into space a second time and reached the world she'd given her name to.

Kern was showing them the shuttle pod arriving from the surface of Rourke, carrying the notional ambassadors from there. The new maybe-crewmembers. It wasn't clear whether the two birds inside it really considered themselves ambassadors, even though they were happy to state they were, using all the old pomp and ceremony. It also wasn't clear they actually understood the new mission and purpose of the *Skipper*. That it would leave their home star system very shortly and take them further than any of their species had ever gone before. They were a garrulous species, quick to hop onto a transmitter and chat, entirely comprehensible in the language they used, even down to old quotes and figures of speech that Miranda's oldest selves remembered. Every joke and meme was a cultural and linguistic living fossil, impossibly preserved. And yet...

The ships in orbit had done their best to spy out the world below without sending anything intrusive down—just as well, given the birds' propensity for deconstructive vandalism. There was an estimated population of about half a billion birds spread across the world, living in dense clusters and ranging widely. Their roots were mostly in little townships of domed buildings that both Kern and the old souls within Miranda recognized as being evolutions from terraform-era prefabs. They had a working technology: solar, wind and geothermal power, lights, heating, comms and those

immaculately preserved databases. There were whole teams of Portiids, and others up in orbit, harvesting the information there, and learning more about Kern's long-gone people than anyone had ever known, including Kern. The planet was like a time capsule, everything preserved except the people.

And yet there was, simultaneously, little sign of a civilization. The birds built their dwellings, and some observers argued they were farming some of the other species on the planet in a fairly free-range way, sowing plants for them to eat and then culling the herds. They were certainly highly social, great squabbling rookeries of them gathering every evening and exchanging copious information. Except Kern remembered birds, and that was what birds did back on her Earth—or those species still extant in her time. Miranda had watched recordings of the Rourke birds building new habitats for themselves, and the work was a vast flurrying, inefficient mess of birds coming and going, arguing, losing interest, undoing each others' work. By the end a functioning, highly intricate structure had somehow come together though. Just as it was when the Corvids rebuilt their ship.

The solution to all of this would probably be unravelled by the other orbital teams over generations of study. This particular pair of birds, however, appeared to have offered to travel with the *Skipper* somewhere very different and, after considerable debate and agonizing, the crew had consented to it.

The upcoming shuttle docked seamlessly with the *Skipper*, hull merging with hull in a muscular spasm. The atmospheres found a happy medium between ship-standard and the slightly denser air of Rourke. There was a battery of new medical literature about the birds and their environment that Miranda could access if she wanted to, but she left it to Kern to ensure their new guests weren't going to spontaneously drop dead like a miner's canary.

When the hatch irised open, she was expecting a pair of feathered chaos-merchants to blunder in wildly and circle the crewspace, but apparently the birds were taking the gravitas of their new role seriously. Or else the lack of gravity, she reminded herself. Likely they'd be getting everywhere soon enough but it would take them a while to adjust their flight patterns to zero-G. Whatever the reason, the pair of them strutted in like customs inspectors catching a whiff of contraband, heads constantly jerking and turning to take it all in, and not an ounce of fear between them. They kept up a constant croaking back and forth in their own versatile speech, entirely divorced from

the ancient human language they used to communicate with their visitors.

“They’re your problem now.” Kern’s dry voice in her ear as she stepped forwards to greet them.

“Welcome to the *Skipper*. Let me make the introductions.” Names, at least, seemed to be a concept they were familiar with and so she went round the crewspace: Fabian, Portia and Bianca; Paul; Jodry. Herself. And Kern they already knew, or some instance of her.

“Gothi,” said one.

“Gethli,” the other.

Miranda looked into their beady eyes, first one then the other on each head as they glanced around, and wasn’t quite sure what was speaking to her, and whether it was an intelligent response or just parrot.

The birds conferred briefly and then one said, “In the longstanding recognition of kinship between our two peoples we gladly accept these gifts.” The voice had only a faint husk of raven-ness to it, an agile mimicry of the human.

“I think they’re hungry,” Kern said drily.

The other bird—Gothi, Miranda thought—was already striding over to examine the nearest wall with a somewhat predatory air. Its folded wings gave the impression of an officious black-clad human, arms behind their back, trying to find fault with everything they saw.

“Are they going to start pulling things apart again?” Fabian signalled, with a little drumming of his feet and some urgent palp-waving. The echo of Fabian that lived inside her allowed her to decode the Portiid speech, even as Kern was providing translations for everyone else—something as autonomic to her now as breathing would have been when she lived.

“I have provided them with a full schematic of the ship,” Kern explained. “In the hope they will be less inclined to pry. Other than that, I will monitor and convert systems for added redundancy. There are only two of them.”

Miranda watched, fascinated, as the pair of ambassadors inspected their new environs. It was going to be her job to reach some understanding with them, and without deploying her true nature either. It would have been very easy to simply invade their systems and learn them from the inside, but that wasn’t done without consent. This was the iron rule governing the way she interacted with her fellows. And right now she didn’t know whether the Corvids were even capable of *giving* consent.

She could hear Jodry and Bianca making farewells to their former colleagues remaining over Rourke. Kern manoeuvred the *Skipper* away from the planet, ready for departure. Miranda skulked over to Portia, feeling somewhat intimidated by the task ahead.

“Fabian thinks they’ll wreck everything,” the spider communicated, as she checked over Kern’s various safety protocols.

“There are only two of them, like Kern says.”

“Tell that to the organics printer,” Portia stamped out gleefully. Sure enough the Corvids were already neck deep in the innards of the device. One of them was pulling out components with abandon, the other was laying them out on the floor in careful patterns. Kern had quickly started forming a replacement printer across the cabin from them. Apparently it was diplomatic *comme il faut* to let the ambassadors trash the place. Miranda saw Fabian agitatedly cleaning his eyes with his palps, like a human wringing their hands, and smiled.

“Better you than me,” was Portia’s thought on the matter. “It’s going to get tired very quickly if they keep at it. Don’t let them get under Bianca’s belly or they may spend the mission in the freezer.”

“I can’t count on your help, then?” Miranda twitched her eyebrows, simultaneously a human expression and a mimicking of spider gestures.

Portia, of course, made great protestations about her own role in the work ahead. She was, of all things, an explorer. And when they awoke next, there would be a new world to explore.

Amongst the ancient data faithfully replicated in the Corvids’ systems had been a great deal about the terraforming project itself. Information that perhaps Kern had once known, but which had fallen out of her over the long centuries of transformation and reinterpretation. Now a handful of new worlds that had been part of her grand plan had been restored to their galactic map, and they were heading for one of them. The *Skipper* would be the first visitor there since Kern’s ancient people, and who knew what they would find? A dead world, a verdant biosphere, an uplift project, or even descendants of the terraformers themselves?

Looking back, Miranda wondered why nobody considered the other option. Because the arrival of humans at Kern’s World on the lumbering old *Gilgamesh* had shown that the Portiids and their allies weren’t the first to hurl themselves into the void in search of the old terraforming projects.

3.4

The Corvids didn't ask questions. Not that they lacked curiosity—a trail of dismantled and reconstructed systems around the ship attested to that. They learned by investigation though, or at least that was Miranda's analysis of their destructive conduct. The rest of the crew were doing their best to work around the travelling bundle of chaos that was the pair of them. Preparing for transit between star systems was a major endeavour, and nobody wanted to try it if a pair of Corvids was going to dismantle vital engine components at exactly the wrong time. Which left Miranda getting a lot of hard looks and tapping feet and anxious swirls of colour from her crewmates.

The birds would answer her questions, but she wasn't sure what to ask them. Their answers came out like slices of operating manual from Kern's age. They could comment intelligently on technical matters and, if she asked them about life on Rourke, they would give her encyclopaedia entries on ecology and geology, but nothing hinting at an inner life to either of them. And there was a definite division of labour between them. One was far more aggressively inquisitive, the other reduced to some sort of filing clerk and piecemeal reconstructor. Was that just a case of differing personalities, or...?

"I'm going to let the others go into hibernation ready for transit," Kern told her eventually.

"Is that wise?" Miranda didn't want to think about the birds trying to disassemble an occupied suspension pod.

"They have already destroyed and rebuilt one of the sleep pods," Kern told her. "You've noticed they never repeat themselves, I assume?"

Miranda hadn't, because she'd had too much other novelty to assimilate. A glance through her memories told her it was true, though. Once the birds had investigated something, they never went back.

"Did you know they're keeping a journal?" Kern added. "Using our systems. Whatever they deconstruct, they record. Or one of them does, and

the other one reads it. Which suggests the databases on Rourke are more than merely decorative.”

“Reading isn’t understanding.” Miranda watched the birds squabbling over a tableau of medical components.

“You need to talk to them more.”

“I’ve tried. Their answers aren’t very edifying.”

“Then don’t ask them questions. Just because they aren’t questioning you doesn’t mean they don’t want to know. Tell them about yourself,” Kern suggested. “I have designed special pods for them to sleep in, for the journey, but I don’t want to put them under until I’m sure they understand what’s going on.” She gave Miranda a sour look. “You understand.”

Miranda did. It was the same logic that meant she gave Jodry and Bianca plenty of space. Because people expected the worst, when they knew what you were. She and Kern were kindred spirits, in a way. Their misjudgements had, in the past, produced sufficiently dire results that fingers got pointed far too readily. She didn’t want to be an over-enthusiastic body-snatcher. Kern didn’t want to have some other instance of herself call her a kidnapper for taking the birds away from their home. And Kern was always Kern’s harshest critic.

So Miranda sat with the birds and just talked. The original Miranda had been the chatty, sociable sort, outgoing to a fault. It was nice to let it out, once in a while. She talked and listened to the sound of the voice this body had—not quite the same as the original’s, despite everyone’s best efforts—and the birds at least put in a polite pretence of listening.

“The original me—that Miranda—couldn’t get enough of the new,” she told them. “The thought of becoming part of something that would always be seeking out the unknown—long beyond a human lifetime, potentially as long as there’s life at all... She got over her revulsion. She was able to see it as an opportunity and not a threat. And she’s probably still out there, but she knows she’s *in here* too. Part of something greater. That’s our watchword, really. That’s what keeps everyone together when we’re spread so far apart. Does any of this make sense to you?”

The birds cocked their heads, regarding her brightly. “Perfect sense, yes,” said one. And, “The original you couldn’t get enough of the new,” from the other one—Gothi, she thought.

Just parroting? she considered, but it hadn’t been, not quite. Confirming

you instead of the *me* she had used. A small alteration, but one with meaning behind it. “It’s something new we’re after, you understand? A whole new planet. And maybe there’ll be nothing there. Perhaps the terraformers didn’t even reach it. But just maybe... Life is precious. There are a million dead rocks in the galaxy. We’ve only discovered one world where life evolved independent of Earth.” *My world, my true home.* “That’s why your world is so precious too. That’s why we keep looking.”

“We understand,” croaked Gethli. “Life is precious.”

“Renee Pepper understood life is precious,” Gothi added. “That’s why she made us.”

Miranda blinked, then looked around for Kern. The AI declined to manifest visually but she heard the clinical voice in her ear. “Interesting. Renee Pepper was one of the Rourke terraformers.”

“She was very fond of us,” Gothi said. “We were something new. And she didn’t know what we would become. A whole new culture, unless there’s nothing there.”

“Life is precious,” Gethli put in again, but with a different intonation, not quite comprehensible, but Miranda could sense meaning there, trying to bridge the gap.

My words. Or not her words, but as though they’d deconstructed her sentences and then rebuilt them from parts to convey a different meaning. Even the way they spoke was an eerie echo of her own speech patterns, the ones she’d inherited from the ur-Miranda.

Playing the hunch, she started to tell them about Kern’s World and the history that led to humans meeting spiders and becoming Humans, large H. Rather than telling it like Miranda would have, she connected with her inner Portia, effortlessly converting the spider thoughts into the antique human language she shared with the birds. This kind of cross-species linguistics was part of her *job*, after all. They didn’t call her an Interlocutor for nothing. And if she drummed her fingers on the floor or quirked her eyebrows a bit more than usual, well, that was just the original modes of transmission bleeding through. Sometimes, when she was being Paul, she pushed her human skin past its tolerances and ended up black and blue all over from trying to mimic chromatophores.

The birds listened, and responded, and she could hear Portia’s eager, forthright determination in the way they spoke. Yet there was a common

thread there, a message that would piggyback on whatever signal was going the right way. She had a thrill of contact that had been absent before. They would learn whatever mode of speech she used on them, but just as she spoke through the masks of the minds she had copied, so something answered through the birds' mimicry. Or that was her assessment. *Or the assessment of the false Miranda that I am pretending to be. That behind their impression of the Miranda the birds are copying is something true.*

"It's complicated," she told Kern. "Probably they understand."

"That is not very scientific," the AI complained. "I'm still not convinced it isn't a biological Eliza." She scowled at the thought, accessing old memories.

Miranda had to dig deep for that one. Eliza was a virtual entity designed to feign humanity, and proof of how little you really needed to generate empathy in the human mind. Just like seeing faces in objects, people would read personalities into anything that spoke to them.

"We have to make the call. I think they understand. Enough for us to take them with us, anyway. Not enough for..." And she hadn't even raised that topic. She'd have to be a great deal surer about what sat behind the eyes of the birds before she started talking about her true nature and the immortality it offered.

She felt the flinch, then. It still came, every so often. The base nature of Miranda, copied into her and yet still fearing that copying. Thoughts of infection, disease, parasitism, mind-control, the fungus that pulled the strings of its host. It was only a brief flicker, like distant lightning, but Miranda sat there listening for any resultant thunder for a long while. It was a terrible thing to remember you'd hated yourself once, before *that* you became *this* you. Then it was gone, no thunder. Miranda had dealt with the revulsion, and become a part of the greater *We* willingly. But in doing so she had brought memories of how she had once felt.

Kern had been showing the birds their sleep pods, one of which they promptly destroyed in a flurry of terminal investigation, perhaps to see how it varied from the Portiid one they'd anatomized previously. Miranda heard the AI sigh theatrically in her ear.

"If you want to go under yourself..."

"No," Miranda confirmed. "I'll be last in. As usual."

Kern started building a replacement pod, on the assumption that the birds wouldn't, but soon enough they were enthusiastically reconstructing...

something. It wasn't the original pod and, rather than being sleekly flush with the crewspace walls, it would be an untidy mess of organic and inorganic components set lopsidedly into the floor. They were working fast, though, or at least Gethli did most of the work after conferring with Gothi, and Gothi updated the technical journal it was keeping. Miranda accessed what was being set down and found new schematics, a plan for a revised two-bay suspension pod so the birds could go under together, with a list of improvements based on their biology; drawing on terraform-style technology in ways alien to the *Skipper's* usual functions.

"Is this coming from the planet?" she asked.

Kern was silent for a long time. Eventually she admitted, "There's no communication between us and anywhere on Rourke. This is all them. I don't know whether they actually know what they're doing on a conscious level, or whether they're only working at it mechanically, just as Paul's arms would, but they're certainly constructing something functional." A reluctant admission. "It's an improvement on my design."

Supergenius crows, Miranda considered, watching the birds work. Kern had fielded a couple of spider-shaped robots to help now, following the Corvids' own plans, and she saw the birds adapt to take the extra hands into account. Their actual motion and chatter seemed mere chaos, but in their wake was an efficient order. A human would never set things down in that sequence, or in those places, but the end result would work as efficiently as anything designed by a roomful of engineers.

"They think," she insisted to Kern later, when the birds had been successfully convinced to enter the pod. They were sitting upright in it, side by side, clutching plastic perches, waiting for the hour to come round when they could leap out and begin their rampage around the crewspace again.

"I remain to be convinced." Kern was just a voice in her ear again, all non-essential systems powered down for the journey.

"Not thinking like us, though."

"Well that's to be expected."

"Wake us early, please. And if you can assimilate the data from Rourke on how the terraforming progressed, that would be ideal." Frustrating, in a way. While everyone else would be keen to get to see the new world, she'd

still be getting to grips with the old one. But for this Portiid technology would come to her rescue. A cornerstone of spider cultural advancement was their ability to encode knowledge and experience for immediate incorporation into others. Human–Portiid science had bridged the species gap a while ago, and now Miranda could take on a chunk of information and have it be something she *knew*, rather than something she would have to learn. Or at least it worked two times out of three.

This was odd for her, because that injection of knowledge felt like something akin to her own true nature. What she might have been, if the microscopic elements of her had evolved another way. Portiid *Understandings* were like domesticated herds of dumb beasts to her sentience. Or, conversely, her true and philosophical nature meant that she could not be defined as a discrete entity at all; she was an experience that was aware it was being experienced. She was the eternal means, where all the other crewmembers were evolutionary ends.

The thought made her dizzy, as though she'd peered too long into a mirror—always a risk for her, who'd worn so many faces. Best just to make use of the Understanding and not ponder too long over its nature. The important thing was, it was a shortcut to master the business with the birds and where they'd come from, so that she could join the rest of the crew in moving on to study this new world they were going to, however it turned out to be. She felt the old drive—both Miranda's and their own base nature—to experience more. To go on an adventure, in the most positive way.

She bid farewell to Rourke, save for those two fragments they were taking with them, and retreated to her own pod, decanting herself out of the Miranda-body entirely and leaving it a blank slate. Removed, the vast library of personalities and knowledge that was *them* could have been held within a cupped human hand.

PART 4

MERE ANARCHY IS LOOSED

Imir

Now

4.1 Liff

That night, there's a big meeting in the Councilhouse. The room is packed out and, because Uncle Molder and Liff's father are both on the Council this year, the whole family ends up there. Liff's father doesn't feel it's safe to leave his wife and daughter alone. If someone comes, let them just take livestock rather than liberties. And, of course, nobody's saying this directly to Liff. But she's twenty-six now, old enough to read between the lines and listen at doors. Nobody steals the livestock, because Garm and the other razorbacks are loose about the farm and don't take kindly to strangers, but the thought is still there that someone might. That they could turn up in sufficient numbers, and with sufficient ill will, for the tusks of the razorbacks not to dissuade them. That they are *out there*. In the hills. In the woods. In the shadows. Among us.

The Speaker for the Council is old Arkelly, whose beard is iron-grey and cut short at the chin and woolly at the sideburns. A lot of the men have that trim now, a weird uniformity. Uncle Molder does too—Liff has been thinking of it as just the way he does his beard, until she sees the style mirrored through the crowd inside the Councilhouse. Her father's is still the bushy draggle it's always been, but now that makes *him* look different, and uncomfortable because of it. Because Liff understands, without needing to know why, that looking different isn't a good thing.

Arkelly has quite a speech, and the rest of the Council sit on either side of him and nod and look severe. Landfall storehouses are low. This coming harvest is going to be essential. All the children are needed to stamp on beetles and root out their grubs to stop any wastage.

Uncle Molder pipes up, "And there'll be a lot of grubs needing rooting this year. A lot of bugs needing stamping." Liff is old enough to also understand he doesn't mean the same thing.

Arkelly gives Molder a look, and she finds she can understand that too.

Because Arkelly is old, and you get to be Speaker for two years, and someone will have to step into his worn shoes. Normally it would be another old man, or sometimes an old woman, but there's a mood to the crowd that seems to say trembling and wrinkled hands aren't safe ones for the town any more. Arkelly reads this and, even though he's out of the post come Afterstorm anyway, he pulls against it like a man swimming upriver. Makes himself the hard man even though he's so obviously brittle. "We're upping the penalties for hoarders too," he tells them all. Making his voice tough, making his eyes accusing. "Used to be you could get away with a rap on the knuckles, but with the harvests we've had, we can't overlook it any more. You go out and spread the word: any that's found to be holding out on the town for their own cellars and bellies'll face confiscation of goods and stock, and not just what was held back. We can't support those who won't contribute to the common good. And if it ever comes to us having to decide who gets a bail-out from civic stores, you can be sure we'll remember." A murmur of approval from the good and upstanding folk gathered there. And it's another revelation for Liff, who understands they've all come there to show they *are* good and upstanding. Those outside, hearing everything second- and third-hand, because they didn't arrive quickly enough to get past the door and fit in, maybe they're not quite as good or upstanding. And those who didn't make the trip in from the further farms or didn't show for any reason, maybe they're not good or upstanding *at all*.

Then the Speaker recognizes Pardo Alleyn, who did make the trip from one of the out-farms and is saying how he lost livestock and stores to a band of masked robbers who came with guns. How he and his family barricaded themselves in the house and his razorback pigs were all shot. It's not the first time it's happened. And it's going to happen again. What is the Council going to do about it?

"Seccers," someone says in the crowd, and it's like one of the made-up magic stories in Liff's book, the way the word is abruptly all over the room. In everyone's head and on everyone's lips, so that Arkelly has to bang on the floor with his stick to demand silence.

"We've got patrols," he says. "The militia is out with guns. We're searching for their camps, and we'll find them. But harvest is coming and we'll need all hands for that. Every man out with a gun is one less in the fields. We need to strike a balance." It's good sense but, when your back is

up against a wall, good sense has a way of sounding weak.

Uncle Molder is weighing in again, out of turn, bullying his way into the conversation. “You’ve got to ask yourself how they know where to strike,” he says. “I mean, which farms of ours are vulnerable. We all know, don’t we?” Eyes roving like flies around the room. Liff hates him, really. He’s family, but he argues with her dad and he talks a good workday without ever quite putting one in. Now here he is, shooting his mouth off at the target of being the next Speaker. He’d say anything. Liff can see it. Why can’t anyone else? Instead, nobody’s looking at Molder. They’re all looking at their neighbours, or their neighbours’ neighbours. Because he means spies. He means people the Seccers send into town so they can plan their raids and attacks. Even though Liff has never even heard of any attacks until after the last two bad harvests. She wonders if her father will say something, because he’s always quick to shout down Molder at home when her uncle starts talking like this. But he doesn’t, and she realizes he’s scared too, in case all those suspicious looks get turned on him. Maybe now he won’t say anything back home, either.

“It’s the Watchers!”

Everyone goes quiet.

Liff is too small to see who said it. Someone near the back, someone in the doorway. A thin arm waves in the air. A woman’s cracked voice. A cracked woman too. Pushing into the room with sharp elbows, it’s the Widow Blisk, who’s older than Arkelly and came in from her farm last year after the Council decided she couldn’t run it any more. Since then she’s been the town nuisance because her mind’s off one of its hinges, as they say, and swings crooked all the time. “The Watchers!” she shouts now, even as people are trying to bundle her out. “Come down for what we did! What we did to them! Remembrance isn’t ever enough!”

Liff wants to get up right then, find something to stand on and demand people tell her who the Watchers are and what happened that was so very bad, but there’s nothing to stand on, and she knows nobody would tell her. They’d just lump her in with the Widow Blisk, cracked and one hinge loose. Ignorance and frustration make her want to scream.

Everyone’s occupied in either evicting the Widow Blisk or ostentatiously not listening to what she has to say. Everyone except Liff and, as she casts about the room, one other person whose gaze she meets.

Miranda, the schoolteacher, crunched into a corner. Her expression screams *difference* to Liff's eyes so loudly she wonders it doesn't drown out the complaints of the widow. Like a lightning rod just waiting for the storm. But hers is a face shorn of all that shadow which came over the other adults' faces when the Watchers were mentioned. A shadow Liff reckons is guilt.

She wonders if Miranda really is just a young woman come in from one of the many, many failed out-farms. The town is thronging with people owning just the same sad story, after all. Or is she something else? Something dangerously different. But of all the teachers Liff's had, Miranda is the only one she's liked, the only one who's taught her anything interesting. And maybe now she can teach Liff what none of the other adults are willing to do.

Of course school's not in session, because it's summer and there's work to be done no matter how small your hands are. Liff is stuck on the farm most of the time, stamping on the big-as-your-fist beetles that are coming down from the treeline in search of lunch. They are hunch-backed and high-stepping and shudderingly swift. Sometimes one stamp isn't enough. Garm and Heggaty and the piglets snortle about the farmstead grubbing up the larvae. Liff looks in at the storehouse and there's basically nothing there for any beetle lucky enough to escape a stamping. She can't ever remember a year like it, but for a while now each harvest has been leaner than the last, and they have nothing left to fall back on.

Most of the rest of the time she's on patrol with the kids from five of the other nearby farms. They take it in turns to go to one set of fields or another and poke between the rows of maize for more of the ubiquitous insects—a slightly different size and shape, Liff notes, but nobody is interested in her discovery. The plants are all gnawed. The already slight yield is being eaten into. Hickory Gembel says the forests are dying and the beetles are all out roaming because there's nothing to eat in their normal places. Everyone tells him forests are too big to die, but Liff says nothing. At night she can look out of her window and see that more than half the trees have shed every needle and are just bare branches and trunks, showing the flash of white wood where the bark has peeled away. Then she stops looking in case the moon lights her eyes all the way to the Witch's cave she knows is up there; that everyone knows is up there, except none of the adults will admit it. She hears rumours,

from one child or another, that Mr. such-and-such went in secret to visit the Witch because his wife wouldn't obey him, or that Mrs. you-know-who went because she wanted a child, or didn't want the one in her belly. Or that there was a charm you could ask for, to lead the Seccers away. Or that the Seccers were the Witch's familiars, animals turned into human form that she sent out to do her bidding on dark nights. That someone had seen a thing on a road at night which didn't move like a pig or a human being, or any known thing. That some child had woken screaming about a spider the size of your head. And other incidents.

Then, soon after, the tractor breaks and her father needs parts or, better still, skilled help. It's an ancient piece of machinery, so often repaired that there's no original piece of it left. One of the few functional motor vehicles in the whole of Landfall, or it was until it broke. Liff pipes up saying a friend of her teacher in town is a good hand with machines, and if anyone can fix it, he can. Her father glowers at her first, and then a new expression comes briefly to his face: furtive, unhappy, eyes casting about for something. He's looking to see if Uncle Molder's there, she realizes. Even though Uncle Molder already walked to town that morning to go sit in the Ricehouse with his Council cronies and talk affairs of state. The flinch in her father is automatic now, day or night, storm or dry.

He scribbles out a list of parts and a description of what's wrong with the machine. His letters are terrible and his spelling is worse; just as well Liff will be there to translate, honestly. With this in her hand, and a promise of food or work in payment that she knows they can ill afford, she's running off towards town.

Miranda is actually there, at Fabian's Fix-it, which is just about perfect. Not just her and Fabian, either. His sister is out front, cleaning her gun with that intimidating pugnacity that has most of the men in town keeping well clear of her. Inside, there's Miranda's other friend, the artist with the wild wavy hair and the tattoos on his arms. He's painting at his cobbled-together easel, and looking at Fabian's scary sister, but the splotch of pigments on his board look nothing like a human form. His whole family are with him—Liff doesn't know what happened to the mother, but the artist has a lot of children and they're always doing something industrious. Some of them are helping Fabian with another broken-down tractor, handing him tools and fitting loose pieces of metal together in interesting ways. Others are taking turns

scribbling on a piece of paper, numbers and letters in nonsense configurations that nonetheless seem to have some whiff of the maths classes Miranda taught her.

She explains to Fabian—or to his feet because he’s under the tractor—what her father needs doing, and his muffled but cheery voice tells her that he should be finished up shortly and then he’ll stroll back with her and with his toolkit and take a look. And, duty done, she’s left with sole custody of Miranda.

She pauses, and the woman waits for her, because Liff’s very obviously on the point of saying something. Except it’s such a big thing, such a problematic thing—she understands, even at her age—that it’s hard to say. It’s the thing nobody talks about, at least in Liff’s earshot.

Nobody else is listening, though, unless it’s some of Paul’s busy clan, and so she pushes on with it. “I want you to teach me about something,” she says, trying to sound as grown-up as she can. “That’s your job, right?”

Miranda shrugs. “Right now my job is anything I can get to bring food in, Liff. I’m borrowing from Fabian’s repair work as much as anything. But some of the better-placed here in town can find a little something to get their children extra tuition. Other than that, I can clean and mend and I know something about machines and electrics myself. Worst comes to worst, I can always stamp a beetle. But what do you want teaching? I don’t think we have time for a full lesson.”

Liff leans in. “About the Watchers,” she says. “Nobody will tell me. Only the Widow—”

“She did say, yes.” Miranda’s face is carefully still. “So nobody’s told you, Liff? About who the Watchers are?”

Liff shakes her head, leaning in further, feeling a worm of excitement inside her, that she’s about to find out the Big Adult Secret.

But Miranda grimaces. “Liff, on our farm, it wasn’t something anyone talked about. So I don’t know.” She says it quietly, and Liff realizes that she has just been handed power, should she want it. Because Everyone Knows who the Watchers are. Or at least nobody would ever admit to not knowing who they are. If she went to Uncle Molder and told him that there was a house of people towards the outskirts of Landfall who didn’t know about the Watchers, he’d grin at her and ruffle her hair. Then maybe he and some of the militia would come and ask a few hard questions about just which farm

Miranda and the others had come from, where that common currency wasn't in circulation.

Liff nearly-but-doesn't ask those questions herself. Because what does she know, really, about who Miranda is and where she lived before she drifted into town, along with her friends, from whichever out-farm it was they'd really come from? And weren't they all a bit odd, those friends of hers? Oh, skilled, useful, but peculiar. Different. Strangers. All of that was power in Liff's hands; a power she didn't want and would have given back if she could.

"Why don't you tell me what you know about them," Miranda says carefully, "and I'll tell you, and perhaps we can work out something?"

Liff glances towards Fabian, but he's still rattling about under the tractor, and so she nods. "I think the Seccers are sent out by the Watchers. I think that's what my parents think." She hadn't quite heard them say as much behind closed doors, but close to it.

"And the Seccers are...?"

"Bad people. People not from around here."

"From where, then?" asks Miranda, who's not from around here, and then, just as Liff is pinned by her gaze and awaiting a horrible revelation, "I think the word comes from 'Second,' or 'Secondary' maybe. As in, 'Secondary colony.' Did you ever hear anyone say that?"

Liff shakes her head, and the tension is weirdly released, because although Miranda is plainly aware that she needs to be circumspect, she is just as plainly not a *Seccer*, or not in her own mind.

"Some of the kids say the Witch sends them," Liff says, pointedly distancing herself from the opinion in case it's stupid.

"The Witch?" Miranda echoes.

"Who lives up in the hills. Everyone knows." Except apparently Miranda doesn't know. "She turns animals into people and sends them to raid the farms and steal things."

"Animals into people," Miranda says, another echo but with a different tone, as though witches are patently fantasy, but the idea of transformed animals is somehow more credible.

"They say," Liff qualifies, not sure how dismissive to be now. "Because of the attacks. And how nobody can find the Seccers who're doing it."

"I'm going to say something, as your teacher," Miranda says. She sounds

heavy about it; nothing positive, therefore. “You must have noticed how short everyone is of everything right now, of food, of clothes. The crop yields, livestock fertility.”

Liff nods.

“When people get desperate, Liff,” Miranda tells her, “they do desperate things. And if you were starving, but the next farm over had food, and everyone believed in some other group of enemy people out there, wouldn’t it be easy to put a scarf and a hood on, and go pay a visit to take what you needed?”

Liff stares.

Miranda shrugs. “I’m sorry. It’s not as good a story as the witch and the animals. But life’s like that sometimes.”

“There is a witch,” Liff tells her. “She has two birds, like in my book. You’ve seen them...” Frowning, because she suddenly isn’t sure Miranda actually did. Was that a thing that happened, or a dream? “They turn into people.” And *that*, surely, was just a dream. “She’s a Watcher,” she decides suddenly. What else was the Witch doing up there, if not watching? “She sends the Seccers to attack people. Because she’s a witch.”

Miranda, always the champion of reason, sighs. “Liff, I have a theory about the Watchers. You must have noticed, at Remembrance, or even sometimes when the word gets used, people look up. Up at the skies.”

“To see if they’re being watched on.”

“Well, yes, actually. Exactly that. Because there is really something up there. You’ve seen it yourself. The moving star in your sky. The ship your ancestor came on, to found this—our colony. Heorest Holt’s ship.”

“Grandfather’s ship,” Liff agrees, seeing the wrinkle come to Miranda’s brow, but the expected argument doesn’t materialize.

“What if there were still people on the ship?” Miranda asks her.

Liff freezes. It is an entirely new thought. Because people say “ship” but it’s just a moving point of light in the sky. It’s not like the decaying hulks overturned at the high-tide mark from when people used to go sea-fishing, or even the skiffs they still use on the river. You can’t be *on* something like that. Except Grandfather *was* on it, back at the start, along with the rest of the Founders. It was a ship that brought people from Earth, a long time back, a long way. And then the people left it and came down to Imir and founded Landfall. That’s where everything came from. Unfolding with inexorable

logic out from that point like a complex mathematical equation, until it comes to *this* point and this conversation between Liff and Miranda. But what if everyone didn't leave the ship? What if some people were still on there, looking down, *Watching...*

One night soon after, they come tapping at the shutters of her window. Feeling as though she might discover at any moment that it's all a dream, she removes the bar and opens the latches, careful so as not to make a sound and wake anyone. Or wake herself. Expecting to see what? Her long-dead grandfather? The forest that once was, that's been dying since before she was born? The Witch? Or perhaps that other thing she sometimes feels. The big, hungry thing which crept from the pages of her book. As though she might look past those bleached trunks and see its back moving against the horizon, house-high. Its teeth like white knives; its eyes red. The curve of its spine just like the rise and fall of the hills themselves. And it is the hills, she feels. It's within them and a part of them, prowling about at the edge of her mind when she falls into dreaming.

But instead they're out there, two big black birds such as there aren't on Imir. Tall enough to come near her waist if they hopped into her room and stood there on the floor, which they do.

She backs off to her bed, gets up on it, as if that would help in any way. Stares at them just as they're staring at her, first one eye and then the other. They are never still, heads constantly darting here and there, or preening at their feathers. They strut back and forth with their breasts puffed out like the militia.

"The Witch sent you," she whispers. "You're her familiars."

"*Witch*," one echoes, and the other says, "*Familiars*." Their voices are just croaks in which the words muddle and mangle, but she can understand them.

"You can turn into people," she says. They mutter into their feathers and confer in their rasping voices, and then she knows they can because they do. A man and a woman in dark coats, awkward in their new skins. Exchanging almost embarrassed looks, as if to be fully dressed is like nakedness, plucked of all their feathers.

"What do you want?" she asks them. She is simultaneously scared and sanguine. The whole episode is so obviously impossible that the fear has been

left behind, leaping out at her only to discover she's already moved on into the territory of the utterly surreal. Two non-existent birds from a storybook have come in through her window and transformed into these sharp-featured, black-eyed people. She can still see the bird beneath the skin of their faces, the darting movements, the restlessness of their hands feathering their garments. The man—*Gethli*, she remembers—sits on his haunches, knees to chin and arms about his shins. His sister is *Gothi*.

“We are searching for people,” *Gothi* tells her.

“Why?” *Liff* asks, and *Gothi* doesn't know. There is absolutely not one iota of comprehension in the woman's face. She doesn't even understand the question.

“She who sent us needs them urgently to complete her work,” *Gethli* fills in for her. “Perhaps you've seen them. They would be strangers. Although they would be trying to fit in. Enough that this one,” an elbow into the side of *Gothi*'s leg, making her collapse down into an identical knees-to-chin posture, “can't find them. Under leaves and under bark, beneath eaves and stones and in the hollows of roofs, and their mimicry of you is good enough that they're lost to us.” A whole rattling rockslide of words that *Liff* just blinks at.

“You can't find them?”

“She can't,” *Gethli* confirms, with a nod at *Gothi* as though trying to stab her with his nose.

“And you?”

“Not what I do. I am the executive function.” Words *Liff* doesn't know.

“I won't help you hurt my friend.” Instead of understanding, she falls back on being protective, for which she doesn't really need to know what's going on.

“Come and see *Herself*,” *Gethli* suggests with a shrug. “She'll explain everything.”

“Everything she wants to explain and not one word more, from experience,” *Gothi* says bitterly, shrugging her shoulders and pulling her coat about herself as if cold, all while still sitting on her haunches.

“Yes but now you've said that, why would she want to come?” *Gethli* says with another jab of his nose.

“Why me?” *Liff* asks them, before they can descend into the bickering so obviously in the air between them.

Gothi blinks. “Because we know you. We met you. You exist for us. You are *familiar*.”

“That was just a dream.” Just as this is only a dream, and Liff feels dizzy with the recursion of it all. Much more of this, and she’ll never be certain of when she’s awake. “But why me?” she repeats, and they just stare at her, wide-eyed. She hears someone moving in the house, knows she’s spoken too loudly.

“Come to Herself,” Gethli tells her. “She needs your help.”

Is she a Watcher? Is she from Grandfather’s ship? Would that explain why Liff had seen old Captain Holt walking into the woods, if indeed she had seen that. And would the Witch know why the harvests were so poor and the land so barren, when in Grandfather’s day, everything was so green and bountiful?

She knows she doesn’t really have a choice, not if she wants answers. Even though children who go into the woods in search of witches seldom have an easy time of it, in her book.

She nods, no more than that, and then the pair of them have leapt to the window ledge, first one and then the other, pushing their angular human bodies out. Birds once more, they fly off, black wings against a black sky so that she can only follow them by seeing where the stars aren’t. Then they’re gone, and perhaps they never were.

Her mother comes in, angry at her, telling her to stop talking to herself and go to sleep. Closing the shutters and barring them again after a nervous look outside. Even though what her mother is worried about is so very mundane compared to what is actually out there.

4.2 Miranda

There are militiamen in the street and, because Miranda's head is full of her talk with Liff, she doesn't give them a wide-enough berth. She must have missed whatever they said to her first, whether it was a challenge or a proposition, and then they're standing in her way. Right there in broad daylight, they ask where she's going, what her work is, why haven't they seen her around before? What farm has she come from? She tells them the story, about the poor soil and the dead stock, which is why she had to come to Landfall. She has work, she says. She can get food by barter rather than charity. And she's aware even then of the eyes on her. Eyes of other refugees—or rather of *real* refugees—who are already slinking off so as not to become the next example. Eyes of the Landfall townsfolk too, the longstanding locals with their businesses and their entrenched local power. People who know who belongs, and that she doesn't.

They can't know just how much she doesn't, but it has always seemed an acceptable risk, even a somewhat exhilarating one. She and the others are outsmarting these humans of another age. They are using their superior technology and know-how to blend in seamlessly with people who just wouldn't ever understand. Not foolish, merely adventurous.

Except now there are six men with guns barring her way, asking questions. Not shoving or touching her, but looming, a definite menace in their just being there. They have an aura of threat about them and she is caught within it, as though they were some ambush predator whose jaws she has been unwise enough to step into. Four men of middle years, creased skin tanned by the wind and sun of Imir, beards cut in that ugly style they all seem to espouse now. Two younger lads, barely adults, rangy sketches of the solid things their elders have become, chins bristly with hopeful stubble. Different faces, one expression. And they're challenging her, sending barbed asides back and forth. "Don't recall seeing her last Remembrance," even though

Miranda had been there. “You ever hear of a farm named that?” As if there aren’t hundreds of little out-farms left over from when the land gave more, and people had hope about it and were spreading away from the township’s jealous grasp rather than falling back into its orbit, momentum spent. A generation, two generations, ago, she’d bet that many like this were bemoaning everyone leaving town, because it meant people could go off and be their own thing. Evade the close scrutiny of those who’d appointed themselves arbiters of what should and shouldn’t be. Except now people were all back here and it seemed what the good people of Landfall had really wanted was an excuse to bully those who couldn’t fight back. Or that was her uncharitable opinion as one of the bullied.

The farm she said she’d come from didn’t exist, of course, and that might get awkward if someone started any kind of forensic investigation, but she doesn’t think these good old boys were interested in that.

In amongst the jibes about her other-ness and her uselessness and whose food she ate, the talk slides towards whose table she had her feet under, whose bed she warmed. As she’d expected. Being in broad daylight, families in the street, they keep the comments low for her ears, then they are suddenly on both sides of her, their blot of people spreading out to become a crescent, like an amoeba reaching for its prey.

One high, clear voice sounds out. “What are they saying to Teacher?” Some child, not even Liff; just some girl she can’t even remember the name of, who must have been in her class last winter. But somehow that’s enough. It grounds her in the town, takes her another few steps along the spectrum that starts with *them* and leads to *us*. Maybe the militia don’t want to be the guys who beat up Teacher in front of her class. Maybe they remember the winter schools from their own more prosperous youths. They still glower and stare, but she’s allowed to continue down the street, trying to keep the hurry out of her step.

She passes two more patrols before she gets to Fabian’s place. What strikes her is just how many hungry, desperate people there are in Landfall now. A lot of failed farms out there lying abandoned. People come to beg from the town’s dwindling stores, and another hard harvest is predicted. More than enough hands to do every piece of work anyone needs doing, but all the work in the world won’t change some things. She had expected that all this stink of desperation would brew violence. She’d kidded herself that she was

ready for it even. Except it's not the desperate who are standing around, making up those clots of bearded men with guns. The desperate, even when they have guns, have other demands on their time. The militia are here for the establishment, the older Landfall families with a storied history, who stayed put and grumbled when everyone else was taking risks to grow the colony here on Imir. The punching around here only goes one way, and that's down.

Fabian is in good spirits, at least. Dinner in the rooms behind the Fix-it is always a chaotic affair when enough of them are present. Mostly that means Paul, who is the most chaotic of them. His children—not really children, and arguably only notionally *his*—are constantly busy, sometimes rushing up to stuff cornbread and beans into their mouths, at other times fighting over the chalkboard. An actual *slate*, she thinks, the original meaning of the term, rather than the device she's used to. They might have brought a few mod cons, but what would a perceptive local have made of it? Instead they're all relying on internal systems to record their discoveries and research data, for later upload when they have a clear channel.

Fabian is the cook. He's discovered a curious pleasure in the business of preparing food that is entirely alien to him. Portia makes fun of him for it, though that doesn't stop her eating what he prepares. Of all of them, he's doing well. Everything in Landfall is breaking down, so there's plenty to repair. Miranda recounts her recent experience in town, and he spreads his fingers—Fabian talks with his hands a lot. He considers himself proof against that sort of persecution, despite being a spindly little man most of the locals could break in half.

“You're not,” Portia tells him. She is twice his bulk, and until recently had much enjoyed her cover as a hunter of feral hogs out in the woods. Now the woods are dying and the feral hogs have all been hunted and it's manual labour for her, what the locals regard as man's work. Able to lift and carry more than most of the men, she has a reputation as a tireless worker. And she's too intimidating for them to try anything with her, but she's worried for her “brother” Fabian.

“I've seen them looking at you.”

“What? I'm useful to them.” Fabian, all blithe innocence, somewhat overdone.

“Too useful.”

“That doesn’t make any sense.”

Portia talks with her hands too, and now she makes little dagger motions at him with the first two fingers of each hand. It’s a weirdly inhuman gesture and quiets Fabian immediately, dominance established. “You think you’re the only engineer round here? You’re not. You think you’re the best? You are. So where does that leave the locals who’ve been here longer? You think they don’t have relatives in the militias they complain to, about the out-of-town mechanic who’s taking their best business?”

“But that’s...” Fabian looks hurt. “I thought I was fitting in.”

“We won’t ever fit in,” Portia says darkly. “Her, maybe,” with a nod at Miranda. “She’s had more practice at this sort of thing.” Her jittering fingers indicate face, body, the hands themselves. “We’re not quite there, you and me. Paul even less. It wasn’t so much of a problem before. But it’s becoming one.”

Paul takes that moment to drift past the table, one hand filching a slice of the bread and a jug of the game-tasting, odorous milk the Imiri get from one of their pig breeds. He gives them all a vague, beatific smile. There’s a canvas in one corner he’s working on. Three of his brood are currently clustered around it, staring at the abstract splashes of pigment there—browns and indigos and reds now that he can’t get anything brighter. The declining fortunes of the colony have seen his daubs fade into autumnal hues, a true chronicle of the age.

Fabian clears the table and the children present themselves. They then go out as a stamping squad, with Paul meandering along in tow. They make themselves useful by eradicating the pests currently swarming in from the woods and wasteland, but they are also doing research, which they present neatly written in mathematical notation on slates and scraps of paper. Fabian and Miranda pore over them for a while, collating the data and adding it to their store. A more complete picture of the fate of Landfall is being revealed to them.

“Remarkable it’s lasted this long, really. How many generations since their founding crew first arrived?” Fabian muses.

“Their own histories obfuscate the precise details, and nobody’s family records seem to match up, annoyingly.” Miranda has, in calmer times, tried to piece together a genealogy of the best-attested bloodlines. Like Liff’s own,

the Holts, who trace their ancestry back to Heorest, the original captain. She has stitched them together by marriages and interbreeding, and still been frustrated, because they reuse names a lot, and because, if you pick at it long enough, you'll find an inconsistency somewhere. It's as if the people of Landfall hadn't been living their lives in the understanding that, later on, amateur anthropologists from another culture entirely would want to study them.

"This is looking bad, though," Fabian adds, drumming his fingers nervously on the table. "I don't know how much longer they have left."

"If they actually pulled together properly," Portia says disdainfully. "Instead of which, they're fighting each other. Reminds me of us, some of our own history. A collapse of the resource web leads to a collapse of infrastructure which leads to the collapse of everything else. Except here there's no help coming from outside. There's no outside."

Paul slaps his hand on the table and makes a circling gesture with his arms, disquietingly fluid at the joints. He means that *they* in this room are the outside, and that is a topic everyone has discussed before. What they have a duty to do.

"They believe there is an outside," Miranda says.

"Meaning what?" Portia asks.

"Meaning two things. Firstly, if we suddenly unmask and tell them we're their only hope, they're primed to react badly to it. They believe there's a hostile other community out there, attacking farms and stealing stores. We'll become part of that narrative instantly. They won't trust us. Secondly... they really do believe there's someone else out there."

"You don't, though," Fabian says. "Do you?"

"What if we've missed something?" Miranda asks them. "Look, for a while now I've had the feeling that... something isn't adding up here. The colony, the collapse."

"All perfectly explicable," Fabian says with an expansive shrug. "They set up an ecosystem with basically a handful of species, some of them engineered into a dozen varieties. And they did remarkably well, honestly. It lasted for a long time, all those sticks leaning together, but mutation and evolution happen, and balances become unbalanced. Now the fungus that supported the forest root network has gone into full-on rot-everything mode and the trees are dying and the forest ecosystem is relocating everywhere else

and... just a cascade of problems that trigger more problems. The soil they started with has been exhausted by intensive farming because they farmed every part of it that was worth it. And further out across the planet it's still the original semi-terraformed base layer, which you can't grow anything on. They made some basic errors right at the start, and it's taken this long for them to become a problem. It's a shame." He glances at Paul and flinches. "Don't look at me like that."

"A shame," Miranda echoes, because Paul would look it but not say it. "They're people. Humans."

"They're humans, and yet not Human." And because they're talking the language they are, the distinction he's trying to make doesn't really come out.

Then Portia, already bored by the theoretical talk, is on her feet. "I need to get back to the farm. There's still a cart-load of stuff to bring in, if it hasn't been taken by the Seccers already."

Miranda is nodding at this, all perfectly logical, except then she's on her feet too, arresting Portia at the very door. "Wait, the farm...?"

Portia nods. "Just tools, mostly, but we can use them as barter. Although the market's flooded with failed farmers trying to offload their scrap right now."

There is nothing in her face but herself, no suggestion this is some strange joke or figure of speech that hasn't translated, and Miranda finds herself taking a step back, frowning. Abruptly on thin mental ice with a great roiling chaos beneath it. *But there isn't a farm. That's just the story. We're not actually from a farm.* Except maybe she's the only one who thought that, and all this time Portia's been maintaining an actual farm out there, living the cover, and somehow Miranda never knew. Portia goes out the door and Miranda turns to the others, trying to read their body language and knowing she can't, not really, because those aren't their real bodies.

A few days later, she's coming back into town from a long day helping out on a farm. Harvest season's begun, and she's been knee deep in chill water in the paddies, grubbing for the last of the rice once the owners have moved onto the next. She's been helping the thin, ragged children catch a strain of beetle that's adapted to aquatic living, jolting about the water like frogs with a little jacket of trapped air. She wonders how many beetles fell in and

drowned before some freak mutation provided the right organization of hairs to permit this, and here it is, just one more plague for the tired people of Landfall. The beetles are starving, and yet having a bumper year, because their grubs do well in rotten wood while the adults need other sustenance. A perfect biological storm caused by the ecological cascade that is sweeping down on the colony. One of many. And they have to do something. “They” meaning Miranda and her fellows. Saving people, even if that means they destroy everything that makes these people who they are. Isn’t that the right thing to do? Miranda doesn’t know. She looks on Landfall from a position of technological privilege and sees people toil and suffer when surely they don’t need to. Except toil and suffering built this town, carved any kind of human occupancy from a world the absentee terraformers had absolutely not made ready for them. And now what? Swagger in with your high technology and your pan-species alliance and tell them that everything they did was just a big game and they can stop playing any time they want? What would that accomplish?

It removes the pain. It saves lives.

It makes them more like us. Or not even that. It makes them poor dependent cousins, like the out-farmers come into town, caps in hand.

So what are our options?

She already has options, but they are complex and fraught with danger, and incredibly difficult to implement without being discovered. The Imir ecosystem is failing, but Miranda could go and get some sort of high-techery to repair it, maybe. Introduce some new species to control the problems. Expand the planet’s impoverished biodiversity. Perhaps they could set up their own engineered ecosystem elsewhere on the planet and then lead people to discover a promised land? Become the Seccers everyone’s so worried about and that Miranda doesn’t really believe in. She spends all the walk back into town cataloguing on her internal systems just what could be done, building food webs and listing potential species-specific parasites they might design or adapt from existing stock. Beetles parasitizing beetles parasitizing beetles, all the way down.

Then she’s passing through the centre of town and the Councilhouse and there’s Paul, just getting knocked down by the gun-butt of a militiaman.

She stands, frozen, the disconnect between her thoughts and her eyes momentarily paralyzing. There are a full dozen of the militia there. There’s

something discarded on the ground behind them. It's a framed picture—the rice-paper canvas shredded. She can tell it's the one Paul did that some previous Council liked and hung up there. One of his abstract, bright colloquies of shapes and colours that wake the emotions. Except now nobody wants those emotions. Nobody wants his art.

Paul is protesting, but all he can do is make those hooting noises. He can't form words. Everyone who knows him knows it. He's not simple, just mute, exactly as mute as his body and hands and face and art are expressive. Miranda knows there's a reason for it, that nobody on Landfall could even conceive of, but it's always been enough for people to know him as the mute, eccentric artist. The odd man who dyes his shirts strange colours and has tattoos he inks himself. Who leads his constantly busy children about in an industrious mob, ranging around him as he sets up his canvas. An outsider from the out-farms, but someone people know, because it's impossible not to notice him. The colourful, blameless clown.

Now he's on the ground with bright copper blood about his lips, arms up—not defending himself but flailing at his attacker. His children are there, swarming the militia, kicking, grabbing, climbing even. They get thrown down, and some of them get slapped, while others are grabbing up sticks. All their faces have the same blankness. Things are getting very out of hand. Miranda can see instantly how Paul's progeny, that are really part of Paul, are going to defend him without any thought for their cover here in town, and that may be problematic for all concerned, especially Paul. When eight children fight like a perfectly coordinated pack to cut the throat of a militiaman in broad daylight, that will go very badly indeed.

She rushes forward, waving her arms, shouting. "Leave him alone! He's not well! He doesn't understand!" Playing that card in the hope it will recharacterize how they see Paul, not that it would necessarily count as much of a shield. She makes herself the centre of attention, which was the other point of all that shouting. But then she gets a gun-butt hard on the jaw herself, and next thing she knows she's sitting down.

And everyone's looking at her. Everyone. The militia, the townsfolk, even the out-farm refugees there to get a meagre handout. Everyone's face says they don't know her, in that moment. That she doesn't belong. If anything, the other refugees' faces say it louder, because if it's her, it's not them. Because the best way to make yourself *one of us* is to find someone more

them than you are, and put the boot in.

The man who struck her didn't actually mean to, she realizes. An instinct, a reflex, and now there's a woman half-stunned at his feet. Maybe he was already thinking things had gone too far. They'd just been throwing a painting out, and then this hooting lunatic had flailed up to them, and now he's gone halfway to breaking the jaw of a woman he didn't even know was there.

Miranda makes the point by spitting out a tooth and wiping blood from her face. The tooth will grow back, though she doesn't share that little piece of anachronism with them for obvious reasons.

In the moment's stillness *that* wins her, she helps Paul to his feet, the children clustering protectively around them. One of the little tykes has a knife and she shifts over to block any sight of it. Nobody wants to see a grim little girl with a switchblade right now.

She's been in town over a year. People know her. She's taught their children. She can feel the fabric of that assumed life pulling taut, tissue thin, nothing you'd trust your weight to. But perhaps just enough, this once, for the last time.

Paul is up. He casts an anguished look at the ruined art, but he of all people should understand that art is transient. She gets him away, back to the Fix-it. She doesn't stand there and shout at all those people about how she had just spent all the walk back to town thinking about how she had a duty to help and save them. She doesn't return to that inner argument, in case her hurt and anger have tipped those scales. She still doesn't know what the right thing to do is.

4.3 Liff

Her chance comes when Uncle Molder has some of his friends from the Council over. They're the younger, newer appointees—which means not particularly young, but not old men like Arkelly. He and they monopolize the main room of the house, and Liff's parents are reduced to waiting on them. Desperate to demonstrate just how unqualified their support and loyalty is. Liff knows from visits to town that everyone is looking at everyone these days. Even if you're the oldest of old families, if someone has a grudge against you then maybe the rumours might start. Maybe you'd been bought by the Seccers, who simultaneously seem both to be so desperate that they have nothing, and to have unlimited means with which to bribe people. Uncle Molder and some of his friends took one of the working cars, a great grumbling monster composed mostly of welds and patches and big armoured tyres, and did a tour of the farms immediately outside Landfall. They were looking for Seccers, weapons caches, any signs of the enemy. He came back home with a quantity of bacon and bread and rice wine, all generous donations to the cause. Liff might only be twenty-six, still on the edge of childhood, but she can see exactly what was going on. And she knows nobody will say anything, just as her parents won't say anything. Because, right now, if you stand up then you're the nail and men like Molder have hammers.

Her parents are actively keen to keep her out of the way. They don't want her near these hard Councilmen, or maybe they don't want Liff to see them fawning and scraping. Which means that when Liff packs her bag again and sets off over the fences for the treeline, nobody is around to stop her. She can always say she was stamping bugs with the other children, given how many bugs there are to stamp. It's mid-morning, plenty of time, and she has an idea that seeing the Witch in the daytime will mean... something. Some nebulous protection. That's how the stories go, and she has little else to guide her.

The trees are dying or dead. Their bark blisters back from pale wood, peeling like sunburn. The ground is a brown carpet of dead needles, and she knows that if she digs down a little she'll find a wet slimy layer of rot all the way to the roots. There'd be beetle grubs in their hundreds, gnawing away and not realizing they're signing the death warrants of their own future generations.

"Well," she says, "I'm here." She's not going to shout, and risk someone looking out of the wrong window back at the farmhouse. If the Witch and her familiars want Liff Holt to visit, they can make themselves obliging.

And then they're there. Two black birds sitting on a dead branch, peering down at her. If this was one of her stories she'd have to wonder if they were everyday real birds or magic talking birds, but Liff's world has no birds and so they must be the latter kind.

"Will the path be there?" she asks them. "To the Witch's cave?" Because it comes and goes, she knows that much. She remembers it being at her feet, and then becoming just forest as though it had never been. Or as though three years of storms had wiped it clean away. Forward, back, a dizzying revelation to think that both ends of time look the same, the ground showing no sign of human passage, and the path only existing as a brief moment of *now* between them.

One of the birds shifts, and for a moment she imagines them both turning into people right there, the dead branch shattering beneath their combined weight and pitching them unceremoniously to the ground. She laughs at them, and in that instant they drop down on her and transform. Except it's almost as though they were people all the time, just crunched up into bird-shaped spaces. There's no twisting and shifting of flesh, just a trick of the eye, a visual illusion.

"The path," says the brother, Gethli, just parroting, the words without meaning.

"We remember when there was a path," Gothi says.

"If you say so." He's not convinced.

Liff stares at them, waiting for them to sort themselves out. It's as though they're still shrugging into their human clothes, inside their heads, she thinks. But then, a moment later, she thinks it can't work like that.

"Where does the human go," she asks them, "when you squeeze down into birds? The human inside?"

Gothi and Gethli stare at her, and then the sister blinks and shrugs and uses her sharp chin to adjust the fit of her coat collar, as inhuman a motion as Liff has ever seen.

“It’s not like that.” Gethli doesn’t sound offended, or even bewildered. “This is just us fitting in. And it’s me, really. She’d not bother, if it was just her. She’d fall back on what we know best.”

“And you?”

“Me? I don’t know anything.” Gethli widens his eyes, making his face as vacant as can be. “But I’m good at working things out. Gothi’s terrible at puzzles, but she knows everything we ever saw.”

“You’re the Witch’s familiars?”

He cocks his head. “Perhaps Gothi’s the familiar, and I’m the novel.” Apparently that passes for an answer, with him, though Liff doesn’t understand it.

They lead her into the woods. She looks back at the farmhouse once, gauging time.

“I need to be back before anyone misses me. I don’t want to get into trouble.” On the one hand it’s a stupid thing to say, and on the other hand she’s going to see a Witch and so stupid things are, as the Council would say, very definitely on the agenda.

The path is there, when they get deep enough into the woods. She can look back and see it snaking between the dead trees, back towards the familiar fields of home. Even though it wasn’t at her feet a moment before, she’s *sure*. But that all seems as expected, to be honest. She’s stepped out of her regular life and into something else. Not even a story from the book—which she has in her bag, just in case there are riddles or something like that, which might be answered in its pages. That would definitely be cheating, but Liff isn’t above such a thing when dealing with witches.

She has the definite sense of moving into something like a story. Not a book-story, but something like a page torn from one, ragged edged, starting and ending mid-sentence, forever lost from its proper place.

They’re heading uphill, and Liff has to labour under the weight of the water bottle, food, book and all the various tools she’s brought, some of them specifically with anti-witch measures in mind. Up to where the trees are scrawnier and even more dead, and the dry needle footing is garnished with the crisp corpses of expired beetles, as though harvest’s end has already

come. Up above, the sky has turned from warm blue to angry grey, the clouds of Storm having rolled in when she wasn't looking. There's the anticipatory chill of rain on the air, and you don't want to get caught on the hills when the heavens open, because flash floods are a peril worse than witches. But then, when the girl goes to meet the witch in the story, there are always threats and challenges. You deal with them by pureness of heart and quickness of wit, rather than prudence or just not going because it's dangerous. Liff is aware she's maybe not making the best life choices, but that sort of thing falls by the wayside once you've decided to let yourself be guided by two magical talking ravens.

Once, she feels the Wolf, that other storybook staple. Her feet sense it, as though it moves through the earth. The trees hide it, though they are too sparse and bare to conceal even a girl like Liff. She stops, dead, because a girl's relationship with a Witch can be complex, but surely a Wolf has only one use for her. There are no wolves on Imir. And there were no wolves on Earth since long before the *Enkidu* set out. Except they clung on in the stories, and now here they are, leaping from her mind and into the hills. It hungers, and if not for her then she doesn't know for what.

Gothi and Gethli cock their heads at her.

"We're late," she says, and "Come on," he adds. Liff has a moment of vertigo because they, the birds in human skins, straight out of those same stories, do not know the Wolf is out there. Somehow it's more of her world than of theirs.

The cave is there, as she knew it would be. A cleft between rocks in a hollow, with a stream running out of it and carving its own little path. Not a path that leads home but one she could follow and not get lost, worst comes to worst. There is one large stone set into the earth at the cave's mouth, which the stream cuts around. It has been ground down and polished smooth enough that Liff can see her reflection in it. How many years and decades and generations to work up that gleaming finish, to grind it flat enough to draw on? Because someone has been drawing on it, or perhaps writing. The marks she sees there are some halfway house between the two; a fantastical screed that seems to be as much calculation as narrative, where the author has expanded beyond any numbers or letters Liff is familiar with. The sense of someone trying desperately to express concepts far past anything Liff knows is very strong. As is a profound disjunction of mind—shards and pieces of

the writing are set at all orientations, jagged, clashing. The stone is whole but the mirror is broken.

In the reflections, Gothi and Gethli are birds still, even though she can look over at them and see their sharp human faces. Then there's another face in the mirror, a woman's, and it's exactly the same face the other way up when Liff looks up and meets the Witch's eyes.

She is tall and far paler than anyone Liff ever knew. Her hair is short and dark and her skin is smooth, but there is an impression of age to her, a tiredness about the eyes and within the eyes. She wears dark clothes of unfamiliar cuts and fabrics; not the ragged robes of the storybook witches but simply clothes nobody ever wore. Liff is sharp enough to think, *If I was dreaming this, she'd be like they are in the book*, and then knows the Witch is real.

Real, but not pleased to see her. Come out to consult her magic mirror, no doubt, only to find a girl waiting on her doorstep. Maybe that means a free lunch, to a witch. "What's this?" she asks the birds, and her voice is stern and harsh and says the words in strange ways, with an odd spin to the vowels and a clip to the consonants.

"The girl," Gothi provides.

"What girl?"

"We met. The girl. A girl. From the colony."

"She might help," Gethli adds. "We thought it was possible that she might be able to help."

"You did," Gothi accuses.

"I did, yes."

The Witch looks from her familiars to Liff with a certain exasperation. "What do you want?" she asks, speaking slowly and loudly as if Liff is an idiot.

"I want my grandfather," Liff tells her.

The woman doesn't know what to do with that. For a moment her face, foreign and louring as it is, is just a person baffled by a child's non sequitur. So Liff asks, "What do *you* want?"

The Witch's eyes go wide at her impertinence but, instead of an angry retort, she says, "We're looking for something that's become lost."

"What is it?"

"A survey team," the Witch tells her. Liff has the curious impression that

she doesn't want to actually say any of this. Perhaps there is some sort of curse in play, that the Witch must answer direct questions put to her. On the other hand, Liff has no idea what a survey team is.

"We are having difficulty cataloguing the settlement owing to the complexity and rapid rate of change amongst the population," Gothi puts in. "Also certain inconsistencies... However, we have encountered this child in several different circumstances. Gethli said she was significant."

"She seems significant, yes," Gethli confirms.

"She had been catalogued, and so we could find her and talk to her. She may be able to parse the chaotic system better than I can." Gothi is saying all of this, and her manner of speech is like the Witch's, but Liff has the impression that the words are... just words, recited by rote. As if whatever is actually behind that beak-nosed face is saying those sentiments in very different ways, but they're coming to her ears in words she can—well, not quite understand in aggregate, but at least ones she knows individually.

"My grandfather came here," she said. "He went to visit the Witch. Everyone says. And I saw him..." She finds herself frowning, because right here and now it's hard to say how long ago it was that she did. "He went into these woods. He was going to see you again. To consult with you."

The Witch should be calm and all-knowing and mysterious, but right now she's also frowning. It's a regular adult's frown at this girl who's turned up speaking nonsense when she has important mirror things to be doing. "Why should I even care about your grandfather?" she demands.

"Captain Holt," Liff tells her. "My name is Liff Holt and I command you to release my grandfather."

For a moment the Witch's face is absolutely blank, nothing human at home behind it at all. But then the human comes back and it is coldly furious in a way that terrifies Liff to the core. She steps around her mirror, one pace, two, and she's looming over the girl, taller than anyone Liff ever met, radiating her anger at the sheer presumption. "You," she spits out, "*command?*"

Liff has prepared for this. She has her pack in her hands already, and she brings out one of her secret weapons. One of the big nails they use to stop the storehouse falling down, five inches of gleaming metal brandished in the Witch's face.

"What," the woman asks, "is that supposed to be?"

“Iron,” Liff says triumphantly. “Everyone knows witches can’t touch iron.”

A variety of expressions chase one another across the Witch’s face, none of them particularly positive. The last and worst one, which holds on long enough to direct the conversation, is a kind of glee.

“Iron?” hisses the Witch, and she takes hold of the nail, thumb and forefinger, and bends it in half without effort. “You idiot child. I *am* iron. I am iron and I am life and all the things in between.” The clouds above are suddenly lower and darker, and she hears unseasonal thunder crack across them. The ground at the Witch’s feet seems to seethe and scuttle with busy motion. The birds have drawn back. Then the Witch seems to catch up with the rest of Liff’s words and she spits, “Witch? Is that what you think I am?”

Liff stutters, because of all the things she thinks about the world right now, that one fact is surely not up for debate. But the thought seems to have quite taken the Witch aback, and she subsides somewhat, staring off between the trees with a rather exasperated expression. “Is that what we’ve come to?” she hisses disgustedly. “Child, I am many things. I am very old and powerful. I can be in many places at once. I have been a god. I am most definitely the smartest person you will ever meet, even if this part of me is temporarily inconvenienced by circumstances. But I am not a witch. I am the exact opposite of a witch. It’s unfair.” She seems genuinely hurt by the label. And, simultaneously, if this woman is not a witch, especially with all those claims added in, then the word has no meaning.

“If you’re not a witch, what do you want with my grandfather?” she is bold enough to demand.

“Why should I want anything with your grandfather?” the Witch asks, and then, “Captain Heorest Holt—” her face contracting into a thoughtful, penetrating stare—“cannot possibly be your grandfather, though.”

“You can’t tell me who’s my grandfather and who isn’t,” Liff says, reasonably.

“Holt, the founder of the colony.”

“And my grandfather.”

“How long ago did he found the colony, girl?” the Witch asks her, and she...

Opens her mouth and...

Blinks and...

“I...”

The Witch looks sidelong at her familiars. “You’ve brought me an idiot.”

“She was looking for her grandfather before,” Gothi says.

“Before when?”

“Before...” The sister shrugs. The pair of them are built for shrugging. And then, lamely, “Gethli said she might help. And I found her. Many times.” Her shoulders hunch wretchedly. “I have a full itinerary and progression of the ecosystem web—”

“Irrelevant,” the Witch tells her.

“Nothing’s irrelevant.” Gothi is almost in tears, or that’s what her voice says. “That’s the problem. Everything’s relevant until it’s been catalogued. It’s all changing so it’s all new, and with the humans it’s changing too fast so it’s new in too many ways and I’m having difficulties. Gethli said she might help.”

Liff looks from the pair of them to the Witch, and thinks, *They’re lost*. A weird revelation, because at the same time they’ve plainly been here doing whatever they’re doing for a long time. There’s always been a Witch in the hills. Everyone knows. But there’s something forlorn and wretched about the pack of them. People working at a difficult task with inadequate tools.

“What are you trying to do. What’s a survey team?”

The Witch looks at her again, and all that majesty and thunder is gone for the moment, tucked back wherever she keeps it. She’s just a strange-looking woman, frustrated by life.

“Witches,” she mutters, with that same disgust, and then, “Well in that case let’s say we’re trying to summon a ghost. That sounds like something a witch would do, doesn’t it? And to summon this ghost we need to get a handful of people together. Very particular people. People who are supposed to be working with me, only they’ve gone and got ideas of their own. We’ve been trying to get these people together, except they’ve gone to ground amongst all you other people. And my *associates*—” said with a venomous look at the birds—“haven’t been able to find them.”

“A ghost,” Liff echoes. “Could you... raise the ghost of my grandfather? Captain Holt.” It’s hard to ask, and part of her still insists she remembers her grandfather, and saw him only recently, but the more she examines the memories and the logic behind them, the less everything seems to fit together.

The Witch makes a few abortive attempts to speak, but in the end visibly changes her mind and just says, “You know, it’s possible I could. But why would I? Unless you help us. Strange people in town. People who belong enough to fool these fools here, but who you can tell don’t really fit.” Her eyes narrow. “Yes, you know who I’m talking about, don’t you?”

Liff thinks about Miranda, who might be a Seccer, and how some people say the Seccers are sent out by the Witch. But it seems that they can get out from under the Witch’s shadow. And she doesn’t want to be the person who betrays Miranda.

“Listen to me,” the Witch tells her. “I am doing a profoundly difficult job under challenging conditions with very limited tools. I am exceeding my projected tolerances considerably just by playing nicely with your planet and your ignorant little community.” All said in a perfectly reasonable tone of voice but with a rod of iron running through it. “I really don’t want to risk causing more damage to everything by taking direct action. You have no idea just what I’m actually protecting you all from. If I’m a witch, then just take it as read that you don’t want me to release this whole legion of devils I’m keeping bottled up, you hear me? So you need to tell us about these strange people, lead my birds to them, point them out to us. And then we can make everything all right and go away, and you can get on with your lives.”

Liff thinks about how those lives are going, what with the shortages and the militias and Uncle Molder, and so the inducement isn’t quite the bargain the Witch probably thinks. But she won’t betray Miranda. Because Miranda is the only adult in the whole of Landfall who’ll talk to her, one human being to another. Because Miranda is in trouble, and if part of that trouble is hiding from the Witch then it’s not going to be Liff who turns her in. She’s shaking her head, fumbling in her bag for her other anti-witch measure and hoping it works better than the nail.

“No,” she says, because if she just goes without explicitly saying it then she feels some unspoken agreement will persist between her and the Witch, crawling into the space left by her silence.

“What do you mean, no?” the Witch demands. “Why no? Listen, I meant it about the devils. Only they’re not even devils, that’s just something you’d probably understand. Worse than devils. I am putting considerable effort into restraining them. All I need to do is stop trying and you’d be overrun with devils, all shapes and sizes.”

“You can’t leave this cave, can you?” Liff asks, and then, “You can’t leave the mirror.”

“Mirror?” The Witch looks down at the polished stone with its arcane notation. “Oh, I see.” The thought seems to come as a surprise to her, as though she knew it, but had forgotten. “I mean, I can. But if I do that then hell is empty and all the devils are here, as the words go. You don’t want me just walking into town and taking a look myself. There’s been enough disruption and chaos already. They can go where they like, though.” She nods towards the birds.

Gothi and Gethli have come closer all of a sudden and, although the Witch is making conciliatory gestures, Liff reckons she knows just where they are in the story. There’ll be a cooking pot on the boil back in the cave.

She gets out her handful of grains and throws it across the mirror, a random scatter of organic nonsense marring that intricate script and perfect shine. Because that’s what you do with witches, in the stories. You throw the stones or grains or breadcrumbs, and they have to stop and count them. Everyone knows.

Even as she does it, she’s considering how incredibly foolish it was to think that such a measure would achieve anything. Certainly the Witch just blinks at her, baffled.

Gothi, on the other hand, drops to her knees, frantically plucking at the mess of spilled kernels. Liff can see her lips moving, *One, two, three...* Gethli is tugging at her cloak, but it’s no good. She’s shaking her head. “Change,” she says. “We need to catalogue the changes. It’s *important*.”

Liff backs away, and nobody’s free or able to come after her, so she takes the line of the stream—the path gone again—and flees.

It takes her all the way to town, so that she knows her parents will be frantic with worry and she’s in the worst trouble she’s ever been in. But when she finds the town, the trouble there makes her own woes look trivial. Everything’s gone as wrong as she could possibly imagine, and she arrives just in time to see it get far worse even than that.

4.4 Miranda

They spend the last night around Fabian's kitchen table, arguing. What can be done; what should be done. By now, Fabian is the only voice saying they shouldn't be looking for a way to intervene, and as he always defers to Portia in the end, that doesn't count for much.

"I just don't see any way it can go well, not the way they are," he tries, but the rest of the conversation has already moved on and he's left running to keep up.

Portia herself is all for direct action. "What they've got here now is a broken system. You want to save the people, that's possible—" noises from Fabian that she ignores—"but not what they've built. Strip it back to first threads and teach them how to weave."

"You don't think what they have here, their culture, their traditions, is worth preserving?" Miranda asks, because to her it absolutely is. It's different, and difference is the only resource the universe is short of. So much of it is just empty sameness. Life is rare, and needs to be studied and admired and encouraged to be itself. That was the great lesson that transformed her own past. "You don't think I might have opinions on what happens when you insist everyone becomes just like you?"

Portia bristles. "That is not what I mean."

"But it is. We know better ways of doing things, we say. You can't do the things the way you were. You have to do them like this: more efficient, more rational. And why wouldn't they, when their children starve and their world grows barren? Then, in the end, all the ways they had and the traditions that arose from them, everything that made them what they were, is gone, and they've just become an imitation of us."

"They are broken," Portia insists. "A valiant attempt at permanence but the whole nonsense they have here is dying. You can't preserve it. It's not some millennia-old civilization, it's a failing colony we've arrived just in

time to save.”

Paul slaps at the tabletop. His children are practically climbing on top of one another, presenting slates and scraps of written text, equations, sketches. Miranda snags one at random, knowing from experience that it won't matter which she takes. The characters there are not anything that the Imiri would recognize as writing. They aren't anything that she does, either, but she has a dizzying moment of translation that leaves her blinking and frowning.

“I...”

“Miranda?” Portia is looking at her oddly. “Your face...”

“Paul agrees with me,” she says. “We need to preserve what they have. He's emotionally invested. You know how he is.” She tries to shrug away what just happened. The notation had seemed to flow and shift in her brain until it connected with a benthic comprehension sunk far down. A feeling of both recognition and disorientation she couldn't explain.

Portia looks from her to Paul and the children, then back. His many progeny are all presenting the same determined facial expression, and most of them have their arms folded in a parody of adult seriousness.

“What you want,” she says disgustedly, “is a zoo where you can come and look at the exhibits in their natural habitat. But what are you really preserving, then? Nothing except a means to sate your curiosity. You're not doing it for *them*, at that point. Just for you.”

“That's unfair. There must be a way to repair the ecosystem, regenerate it somehow. Or Fabian had his plan to seed a new area of the planet...”

“At which point they're still not actually being themselves,” Portia points out. “They're being whatever you decide they should be, which looks a bit like the true thing they were, but is just as artificial as if we relocated them all to orbit and gave them free access to printers for all their needs.”

“I...” Miranda stands up from the table suddenly, powerfully frustrated, within and without. “It's not right. We don't have the right to destroy what they are.”

“And yet the moment we do anything, that's what we're doing,” Portia tells her, not unsympathetically but very firmly. “The only alternative is to preserve what they are, which is ‘slowly dying out.’”

The next morning Fabian has jobs to do, returning to one of the nearer farms

to complete work on their machinery there. Almost time for harvest, and the meagre handful of still-functioning machines need to be in their best condition. Fabian can fix anything, within reason. It's not exactly the sort of engineering he trained for, Miranda knows, but he seems to have genuinely taken to the robust physical elegance of it. Fitting things together that are big and clunky and crude, and at the same time incredibly delicate. Because the rules that determine whether they work or not are the universe's actual physical laws, of friction, mass, energy and entropy.

Portia is out too. She said she was going hunting, though that's seldom the case any more, given there's almost nothing to hunt. She has restless feet, though, born of a long line of wanderers and pilgrims. She can't just sit in the house all day.

Miranda can. And does, in fact, because going out into Landfall right now brings no joy. Too many thin, pleading people. Too many guns and militiamen—and isn't it harvest soon, why don't they have farms to tend? Except the influx of people means that cheap-as-free labour is plentiful, meaning the men with guns can stand about on street corners or monopolize the tables at the Ricehouse and defend their way of life. So she stays home and tries to think of what she can teach the children once summer and Afterstorm are gone and school is in session again.

Political theory, she dreams idly. Astronomy. Speculative fiction about life from other worlds. Maybe that might be the answer, to prepare a new generation for the contact that was inevitably going to happen. That had already happened, save that the locals didn't know. Get them thinking about visitors from the stars with open hands, coming in peace.

Well, maybe not hands, some of them.

The first time someone's at the door there's a family there, just arrived from an out-farm. A man, two women, at least five children. Paul's own brood stand staring at them solemnly. They never play with other kids, only incomprehensible building and drawing games amongst themselves. Paul is far better with children than his own children are. This new family are begging, and Miranda has just enough time to warn them that the locals—the actual old-family established locals—won't have any patience for that, before Paul brings them some cornbread and a hard knuckle of old ham. So, mixed messages there.

The next time someone's at the door it's the mob. Surely she heard them,

before she lifted the latch? But her mind was so full of *What we can do to help* that the world blindsided her. She'd forgotten that, deep cover as they are, all the advanced tech in the world won't protect them from some good old-fashioned community justice.

They've got Fabian. He's hanging between two of the militiamen and the bruises are starting to flower where they've beaten him. She just stares, because he fixes things. He can fix just about anything, botch-job a repair past all reason. He's useful. They know him. Don't like him, maybe. And feel the outsidersness of him. But of all of the household, he's valuable to the community. Except apparently that's not what counts.

They've come for her and for Paul, and there's not really much she can do about that. The children try to get in the way. They turn out to be a remarkably effective defence for a little while, at least for Paul. They pry at hands and arms with unexpected tenacity and resourcefulness so that he slips out of their grip again and again. The militia end up chasing him all over the house and have to haul him out of a cupboard so small he shouldn't even have fit in it. By then various people have taken the children away from him, hauled them off individually, probably with the best of intentions. Probably thinking they are saving them from the influence of the bad man, the madman, the hooting deviant. Paul cries out for them, as though the locals have torn away part of himself, and the children call back. A wordless, alien cacophony, putting into sound sentiments and demands that were never intended for the medium. To Miranda it sounds tragic; to the crowd, appalling. One of the militia bloodies Paul's scalp with a truncheon to get him to shut up.

As for her, she does not fight. She barely struggles as they take her. She's too stunned by the speed with which everything has changed.

She gets some sense of what has gone on, as they're all marched into the centre of town. The First Tree is there, dead now of course but she remembers it alive and verdant, spreading its branches in a symbol of all that the colony of Imir could be. She is very afraid that, dead, it continues in its symbology. They're slinging ropes from its branches.

The farm Fabian had been working on was attacked last night, she gleans. The closest the raiders have ever come to Landfall itself. And by now she is sure that there are no Seccers, or at least the raiders are not Seccers. There has been a longstanding myth of a second colony, dating way back in Imiri

history. A fear that some others got off the old ark ship and set up on their own. Rivals, foreigners, people from elsewhere. Miranda can only wonder how much she and the others inadvertently contributed to that. *Well no, because the belief is deep-rooted in their past, but...* A moment of discontinuity.

The people believe in the Seccers, though. All, perhaps, except those who go hooded and scarved at night to their neighbours' farmsteads and take livestock and stores and tools. And maybe even they believe it. Maybe they tell themselves, *It's there to be taken; they can't defend their own. Better we take it than outsiders do.* When they accuse her of being a Seccer, she tries to tell them there's no such thing. Tries to make them see that they are just growing a cancer in their own flesh. And when they accuse her of being an outsider, what can she say? They present her with the stories she's told about the farm she came from, and tell her they're all lies, and how much can she honestly protest? She, who always thought her lies were good enough to fool these simple people. In happier times people asked fewer questions but there isn't much happiness to go round right now.

She does see smiles—big bared-teeth smiles—and they're mostly amongst the militiamen with the guns, who are just ecstatic at the adrenaline rush all this exercising of their power is giving them. They jostle and joke amongst themselves, and whoop and say in over-loud voices how this'll show *them*. She knows they don't even know who *they* are. But that's not important once you've decided there's an *us* and a *them*. Only the fact of the division matters.

Outside of the militia, most of the expressions are hatred, either sincerely held or even more sincerely performed so that nobody can turn around the next time they want to make an example and say, *I don't remember you hating enough last time.*

Portia comes in then. They haven't caught her, and she's seen what's going on. Although there's half the town assembled and she's just one woman, she makes a game try of it. She has two militia rifles, the crude chemical-propellant firearms they can still make on Imir. She shoots dead the man holding Fabian's left arm. She shoots dead the man gripping Miranda's shoulder. Miranda feels the path of the bullet hot against her cheek. Then Portia has knives and she makes a bee-line for Fabian. The crowd scatter and the militia try to get in her way and she bloodies every hand that reaches for

her, separates fingers from the clubs and axes they're wrapped around. Never still, dodging and leaping in a stop-start frenzy of motion, trying to get to her brother. The first shot someone tries just kills the man behind her. She takes a gun from someone's hands and sends a bullet back down that same line. She is superhuman, in that moment. Literally faster than a human body is supposed to be able to move.

They shoot her on the second try. She's not faster than a bullet, after all. Miranda sees the crimson bloom of blood across Portia's shoulder as the impact spins her about. Even then she sinks a blade into someone's leg—just the closest leg by then, because she isn't in a position to be choosy—before they lay hands on her and hold her and club her down.

Miranda wants to say that Portia just made everything worse, but there are four nooses dangling from the branches of the First Tree, so probably there isn't much worse to make.

4.5 Liff

Liff's caught mentions of the First Tree in the adults' conversation, so she knows they had some plans for the dead hulk that didn't involve just chopping it down before it became a danger to life and property. No specifics, though, not in her earshot. And it isn't as though she'd have recognized the word "gallows" anyway. Her life hasn't needed a precise term for a place to hang people until dead.

Now there's a crowd out, packing the space that's been kept empty in the very heart of Landfall. People pushing up against the rusted wreck of the *Urshanabi* shuttle, against the walls of the Council building, thronging the front of the Ricehouse. And a commotion at one edge where she thinks someone's fighting? Gunshots, screams, shouts. The crowd surging this way and that like a living thing.

She tries to escape then, but there are people funnelling in from further out in the town and it's as though the crowd is a single amorphous being that has her in its clutches, that is trying to grind her under its many feet, to devour her and crush her. She is carried into its roiling centre, stumbling over the bigger shoes of adults, clawing at their coats and shirts to stop herself going under, calling out for help. Help from who? Nobody has time for her now. There's nobody she can turn to in the crowd. It's just the Crowd, a thing to itself.

Except someone then grabs her and hoists her up, and she sees there's a platform here. They've built a wooden stand under the tree branches and the crowd has eddied her right up to it, bruising her against the splintery planks. It's from this that the strong hand reaches down and plucks her from the throng, and now she's above the people, standing at their head level.

It's Uncle Molder. He's up on the platform with a handful of other councillors and militiamen. His face is red and flushed and drunk and happy and angry all at once. It's as though all the different nasty parts of him are on

show, like someone had taken his personality and unfolded it, smoothed it flat so there was nothing of him he wasn't feeling and thinking and displaying all at once.

"You are in so much trouble!" he yells in her ear, though it's not the angry part of him that's saying it. "But it's good you're here. You need to see this. This is how it's going to be. This is what saves us!" There's the reek of rice wine on his breath but it's not the drink talking, it's him.

Wasn't he at the farm a moment ago? But then she isn't sure how much time has passed. Time can be tricky when you're talking to a witch.

Then they're dragging people forward through the crowd and she understands, belatedly, what's going on.

She isn't sure if Portia is alive. The woman's been shot and beaten and she hangs like a corpse in the hands of the men who have her. The others are still alive, for sure. Fabian is meek, unresisting, a scrawny little man in the ogreish hands of his tormentors. His face is a mess of red blood and blue bruises. Paul is fighting, constantly on the verge of squirming out of the grip of his captors. His high voice gibbers over the sound of the crowd, calling out desperately. They can barely hold him. It's as though every joint is doubled and tripled or he has nothing but gristle instead of bones. And then there's Miranda. They've not beaten her as much. She's led through the crowd with her head high, at least. Liff lunges, trying to go to her. To achieve who knows what? To warn her about the Witch? But that's hardly likely to be Miranda's priority right now. Her uncle's hand clenches on her shoulder, and she doesn't go anywhere. Instead she twists in his grip and shouts at him. "What are you doing? Let her go!"

His reply comes as if it's a non sequitur, as though she hasn't spoken at all. "What you have to understand is that these are bad people."

They're not. She tells him they're not. Miranda's her teacher. She loves Miranda.

"People who aren't from round here. Not even as close as they claimed," Uncle Molder goes on patiently, tone conversational but the volume of a shout in her ear to get his words through the sound of the crowd. "People have been robbed, Liff. Some have been killed. Livestock taken. Livelihoods. A barn got set on fire a few days back. Bad business. Outsider business, you see." He puts it as though he's trying to persuade her of a proposition. Liff, no fool she, takes it in and thinks that if people *don't* see it's outsider

business then maybe they'll start thinking it's insider business, and Molder's telling her that would be bad for everybody's business. Far better that these things are kept as the doings of outsiders. But in that case, you need some outsiders to do unto as you've been done by, and that brings us to today's festivities. All of this in just a few words of her uncle's. As though it's the most natural thing in the world. As though they've done it a thousand times.

"No good for us," he says, and again the truth is in the gaps between the words. Miranda, with her ideas and her teaching and her being *different*, right when what the Council really needs is a unity born of people thinking and acting in predictable ways.

They've got them up on the platform now—walked up or hauled up depending—and Liff makes another effort to go to her teacher, but Molder's hand isn't moving anywhere and it retains possession of her shoulder. She thinks how frightened she was of the Witch just a few hours ago and how silly that seems now. What could the Witch have done, that's worse than this?

Portia is just about stood up so they can get the noose about her neck. She's lolling, and her shoulder is an exploded mess of blood and bone that makes Liff feel deeply weak and sick. Fabian is still not fighting. He doesn't seem to understand the purpose of the rope. His eyes flick back and forth very fast, fixing on nothing.

They almost lose Paul, getting him up. Like someone trying to land a fish with too much fight left in it, or a bar of the greasy hogsfat soap they make. He almost goes flying from their grip into the heads of the crowd, all his limbs flailing every which way. And there's a peeping chorus of complaint from all the places his children are being restrained. Liff sees them fight to get to him, all of them in sync despite being split apart. Paul strains his hands for them, eyes protruding, face contorted like rubber. They get him up on the platform eventually, though, and a noose about his neck, struggle as he might. Then it's Miranda's turn.

Because she's been so meek, they don't expect it when she steps out of their hands and shouts at the crowd. Talk is her only weapon, of course. It won't work this time but Liff strains to at least catch her words.

"You're all dying!" she shouts. "Everything here is. We can help you! Please, don't do this! You need us! We can save you! All of you!"

Then they have her again and a cloth is stuffed into her mouth, and they

get her on the edge of the platform with the rope in place.

The crowd quiets. There's a look back and forth between Molder and the other councillors there as to who's going to kick things off. She thinks her uncle's going to speak then, but it's one of the others, Mr. Gembel, who's a few years her uncle's senior, a broad, sour man with a good farm and a bad temper. He stomps up and scowls at the crowd and says, "This is your proof that the Seccers are here with us," as though anything here proves anything. And yet everyone is nodding and shouting agreement, as though he's set it all out in mathematical notation. "We'll show them what it means to spy on us. To take the work of our hands. To come over here and pretend to live like us. There are more out there, but we'll get them too. They know who they are. They're listening to me right now. They're watching how we deal with them." He stops, leaving everyone eyeing their neighbour. Liff doesn't even know if that was the effect he was going for but it's certainly the one he's got.

Then it's time. There's a militiaman behind Fabian and Miranda, and three each holding Paul and propping Portia. Every prisoner has their hands tied behind them, so as to prevent any undignified clutching at straws. At Gembel's barked order they shove them over the edge. Liff screams. The crowd screams. Same sound, differing emotions behind it.

They dangle and jerk there. Portia is slack, the blood loss sparing her the execution. Fabian twitches and spins, eyes still staring wildly, not seeming to understand why there's a rope at his throat or what it's supposed to accomplish. And Paul...

There's another scream, from close by the front where people have pushed for the best view. They're pushing away now, as Paul dangles and deforms. More screaming follows, from a more unified emotional compass. Because something dreadful is happening to the body.

Her uncle is pulling her away but he's not covering her eyes and Liff stares and stares. She sees Paul's shoulders and elbows pop, the very arm bones seeming to bend as he inexorably slides his wrists and hands out of their bindings. The fingers ripple and flex in every wrong direction as they burst free. That's nothing compared to what's happening with his head. They wanted to stretch his neck but here's his neck, stretching like pliable putty. Here's his skull, compressing on itself, elongating, slipping through the nut-sized gap in the tightened noose inch by inch, his features elongating and

stretching until there's nothing human about them. Blood and bruise colours pulse and ripple over the stretched canvas of his skin. All around the crowd his children break free of the hands that can't hold them any longer. Stretching and twisting from anybody's grasp, forcing their individual ways through the crowd like worms, or ribbons, converging on their father, reaching out for him. Not to prop up his sagging shape but to attach, to pull, to bring him back to them. The crowd is actively fighting itself to get clear, and a gun goes off.

Then Liff sees what's happening to Miranda and it's even worse.

4.6 Gothi/Gethli

Well that was novel and no mistake.

That could have gone better. And no mistake.

We have something to report.

We were too late though. Essence of comedy, isn't it.

What?

Tell you later.

What?

What can we conclude, then, from all that outpouring of novelty we've just witnessed?

That it's not my job to draw con—

Timing.

What?

Essence of comedy.

You've made that joke before. It wasn't funny then, either.

You don't understand any humour more complex than a pratfall.

Neither of us do, by definition. We're not really sentient. It's all just parrot, innit.

But without the resting and the lovely plumage.

What?

More humour. And, as Herself has no sense of humour, I consider myself the sole arbiter on Imir. Even without true selfhood and sentience. By my own estimation, I am a hoot.

You don't understand it either. You just understand that it's a thing. We read about it somewhere. And because I can tell you how it used to work, you think you can do it. But you're just going through the motions. Humour is a human thing. Linguistic humour, anyway.

Don't deny my lived experience.

You don't have lived experience. That's my thing. You're just a mental

parasite on the new things I learn.

I am a hoot.

That's owls, anyway. An extinct Earth species absent from both Imir and Rourke. I think they have some where the Witch comes from.

Earth.

The other place. The one she named after herself.

You shouldn't call her the Witch. That's impolitic.

It's a new thing I learned from that girl Liff. It has overwritten previous designations. Hence: she's now the Witch.

I'm not saying it isn't a fitting sobriquet, but still...

Don't you have conclusions to draw or something?

My conclusion is that we're too late, what with the lynching and all. Everything's degenerated into chaos. Which of course means...

It's all newness and we're practically starting from scratch. I know this is what we *do* but I feel my tolerances being pushed. Everything is changing so quickly down there. We've introduced a chaotic element into a stable system and it's causing a cascade of errors. Small changes leading to large changes leading to catastrophic ones such as we've just witnessed. Although under laboratory conditions I would be able to follow the ripples back to pinpoint the origin of the change, in this case the various waveforms are interfering with each other to the extent that proper localization is impossible.

I protest. It's not our fault at all. These people can get on and die out entirely without our help.

Yes, but now we've got involved they're doing it differently. This wasn't the way it would have gone. Perhaps only Same Day, Different Lynchings, but that's still difference.

She is going to be so pissed if we have to start from scratch.

There's a certain appeal to it, though, isn't there?

No.

Following the thread from the spool, waiting for the moment it deviates from what we remember. It makes me feel curiously fulfilled, Gethli. Doing what I was born for.

I'll just sit here in the air like baggage, shall I?

Stop sulking.

Parasite that I am.

I'll soon scare up some data for you and then you can get back to those

conclusions you're so fond of.

My premier conclusion is that it's not going to be any better.

I'm not qualified to look for "better." I'm just after "new."

We are, at least, good at our job.

We are the eye with which the universe beholds itself.

What?

Poetry.

Another human thing you don't understand. What we are, as I well recall, is just a crust of a thing built up over the things humans left us with. We are little better than very complicated parrots, really. And all the poetry you mouth you get from me, because it was in the archives back in Rourke. I read and digested it and now you're deploying it as though it's some argument-ending rhetorical tool. So don't go telling me you understand "poetry." You just repeat the words.

Doesn't everyone, Gothi?

I neither know nor care, knowing nothing of poetry. Honestly, things would have been simpler if we'd never learned how to talk like humans.

The red plague rid you for learning me your language!

What?

Literature.

Meaning what?

Meaning... a thing that a human wrote once that seems tangentially relevant, by context and linguistic pattern analysis, to the topic of our conversation. So I threw it in there to seem clever.

Meaning you don't really understand and it's all just parrot.

Meaning, in my very considered opinion, Gothi, that we can't ever really know if we understand or not. It feels as though we do, up until the point that we're challenged, and then the focus of our attention shifts to the challenge and all that complex structure we were working on falls over like a house of cards.

A what?

No idea. Another human expression. Presumably relating to unsound structural practices and a violation of the appropriate construction codes. Would we pass the Turing test, Gothi?

Now *that* I remember. Herself is fond of mentioning it.

Because, though she'd never admit to it, in her lower moments she faces the exact same quandary. Does she actually think, to the standards of a human? Or does she believe she does through past programming but in fact is nothing more than a very complicated difference engine? In the same way, do we think, co-dependent as we are? You with your infallible powers of recollection and recognition, and I with my incisive analytical faculties? Is that truly enough to account for this conversation we're having?

Bit one-sided for a conversation.

That is because we lack novelty for you to pick over. Speaking of which...

Time for us to do our job. Or go back to Herself and get another ticking off, and we've had quite enough of those in the past. Really very, very many of those.

Unappreciated, is what we are. Who else could sieve so vast a set of data in search of so little, "like two blind men looting a bazaar for their own portraits."

Poetry?

Drama.

Ah. Thought we'd had enough of that with what we've just seen. I'll remember next time.

PART 5

THE RAVENSSAGA

Miranda, Approaching Imir Recently

5.1

In the quiet dark, something awoke; formless and ancient, a protean soup bubbling with half-formed shapes. Something singular, and yet many.

Identity could be a hard thing to pin down, and for a protracted period of time they weren't quite sure who they were supposed to be. They sorted through all the different dreams as they organized themselves, an ontogeny that recapitulated their personal phylogeny. At first they were the collected works, stacked out of order and who knew which volume might present itself to the reaching hand. But if they were to be of use to anyone, most of all themselves, then discipline was required. Their seething plurality must be tamed until all of its roiling shapes could be hidden behind a single mask. And they wanted to be of use. At a base level, they were a substrate that only found meaning and expression when it was being used. At another level, they were those who used the substrate. Their true identity hung somewhere between the two. A symbiosis so exacting that the parasite or mimic could look in the mirror and fool itself.

Friends. Reaching into a murky pool of faces and stirring it up until the right visage floated to the surface. It was good to make friends in the vast and empty universe. And, although the others in the crew were the friends they'd made, they also held all the friends they needed within themselves. Sometimes the friends you met along the road were within you all along.

Miranda woke. The *Skipper* was silent. The others still slept and Kern was giving her time to pull herself together.

She was replicating Human pathways of thought, but she wasn't Human, yet. Decanting into a body shouldn't have been strictly necessary, but the container gave a shape to the contained. She found it easier to immerse herself in her role when she had a face to put the name Miranda to.

As though she were a burglar breaking into a house that might yet be occupied, she slipped into that vacancy in the meat which Kern had readied

for her. Sometimes, if she was very careful indeed, she could manage this without—

She felt the twinge, just as she settled and integrated with the body's nervous system, taking up the reins. Just the faintest echo, hardly anything really. A sense of what the original Miranda might have thought of what she was. That long-ago woman's knee-jerk response, which she had smoothed away and buried and completely got over, save when she had gifted her identity to the alien parasite, the stab of horror that had come too.

Miranda was dressed in the loose shipsuit, her feet bare on the warm, slightly giving floor for just a moment, before a flick of her toes cast her gently across the crewspace. She checked their positioning: Kern had brought them back into regular space well clear of any of this new solar system's orbiting bodies. Because the super-relativistic displacement of volumes of space could have a catastrophic, atomic-scale impact on actual matter that got in the way. If there was ever a war between the dispersed strands of their society, even the incidental technological side-effects could leave worlds in ruin.

"I'm waking the birds," came Kern's voice in her ear. "I have the Understandings for you, constructed from the archive materials on Rourke."

Understandings were still a work in progress, outside of the Portiids themselves. So far nobody had managed to encode Octopus sensoria for Humans or Portiids—or not for any purpose other than to give a spectacular psychedelic trip. What lived behind Miranda's eyes was also unreadable, its dense and alien heredity beyond the Portiids' ability to decode. But *she* could read *everything*. Any species that she had learned, she could communicate with, and impersonate. She was the Interlocutor. A repository of all knowledge that only *thought* it was Miranda.

Kern had a spider-shaped remote drift across the crewspace to her shoulder and cling there to inject her with pure liquid knowledge. With one hand on a strap, Miranda let herself float as the Understandings unpacked themselves. Then the busy little multitude within her got to grips with the histories of Rourke and what the birds had recorded of their own origins.

5.2

I

Mostly, the terraformers died.

The closest colleagues of Doctor Avrana Kern perished when a terrorist destroyed their facility. Kern herself would doubtless say that she survived through her towering intellect, but in truth it was more to do with getting to the solitary lifeboat first.

Kern's World was the first and the only terraforming project formally finished when everything went wrong. The other prospects had reached various stages of completion. Some were still grappling with hostile balls of rock and angry chemicals, suffocating atmospheres. All the many different ways that a planet could be unsuitable for Earth-based life. Others had gone through the first basic steps: crack the rocks to release oxygen, cultivate extremophile bacteria and the hardiest of engineered plant life, force-erupt the odd volcano, drop some asteroids and ice-laden comets, trigger a nuke or two. The pinnacle of human achievement, never to be replicated.

But they died. Earth died first, or at least suffered such a self-destructive martial seizure that everyone who survived ended up right back at the blunt end of the hierarchy of needs. But the last shot of that war was the transmission, outwards in all directions from Earth—a killer virus that had only one purpose: to shut everything down. On Earth that was just the last nail in the coffin. It was worse for everyone else, all the people in the colonies on Mars and the moons of Jupiter and Saturn, or floating in the pea-soup atmosphere of Venus, the space stations and orbital habitats. Everyone else was still inside the coffin that was being nailed shut.

That signal continued to rush outwards from Earth, poisoning every ear that heard it. Each terraforming crew, diligently listening for word from home, heard and succumbed. Across the light years, one after another, their

little efforts dimmed and died like defective Christmas lights. Out, out, brief candle. Freezing or asphyxiating, burning up on unplanned atmospheric entry, exploding in momentary fireworks in the cold of space. A handful survived that initial cataclysm and turned the helm for Earth, trying to go back. But if any of them arrived they were then lost in the general ruin, and no trace of their return survived.

That was the Genesis of Kern's World and Damascus and all the other unfinished construction projects of humanity's apex. For many of them it was also the apocalyptic Revelation as well. The near reaches of the galaxy were left strewn with a rubble of might-have-beens, worlds that never received the promised gift of life.

And then there was Rourke.

II

When Kern finally secured the colossal investment the terra-forming projects required, Renee Pepper was right there in the queue of volunteers. An ecologist and genetic engineer, she didn't much care for her family and wanted a hand in building the future. Back then, competition was fierce. The most brilliant minds were jockeying for the chance to build the future under Kern's aegis. There were a thousand tests and aptitudes: academic, practical, social, psychological. Plenty of her fellow aspirants murmured that Avrana Kern herself wouldn't have passed half of them. They tended to be the ones who got rejected shortly after voicing such opinions. Kern was a jealous god.

Renee Pepper didn't rock the boat. She wanted to go into space and create life, because somehow engineering webs of Earth life to live on distant exoplanets seemed easier than meeting either a nice guy or a nice girl and settling down with either or both. Like so many who were chosen for the terraforming project, she was an odd mix of self-absorption and affability.

She was offered a place on the *Phoenix*, headed for a world that consensus had named Rourke. It was not to be the smoothest of all the terraforming missions, although later events were patently going to overtake even the best of them.

The *Phoenix* arrived at Rourke with a battery of critical system errors. The crew had already been awake for far longer than intended, packed and ready

to evacuate on various mission-related subsidiary vehicles if it looked as though the ship wouldn't make it. And, because none of them were fools, they knew there was absolutely no point abandoning an interstellar craft in the depths of the void between stars, and then just bobbing about in little boats that could never have made it either to Rourke or back to Earth. It wasn't as though anyone would find them by chance, or respond to their distress signals in time. It was, therefore, a stressful sequence of events.

Overall Command of this particularly ill-fated mission fell to a tough, stern woman named Alex Tomasova. She held the crew together, and got them to hold the ship together, until they were in faltering orbit around Rourke. Then she looked at their options. Which turned out to be rather more than might be expected when arriving at a world untouched by human hands.

So it was that, when the fatal signal did arrive from Earth, and the Lights Went Out, Renee and the team were mostly planetside on Rourke. They had already stripped the *Phoenix* to the hull in case its orbit decayed, and were midway through planning the maintenance expedition to go back up and save the ship, when everything that could receive a signal simultaneously crashed and died. The ship became just one more old bird that would not be rising from its ashes any time soon.

But it could have been worse. Any other terraforming team in the same circumstances would have been swiftly murdered by the planet they had come to reshape. What made the Rourke expedition's predicament survivable was that Rourke seemed to be a superior terraforming candidate. Yes, it was too cold. Yes, the atmospheric pressure was high for its relatively congenial gravity. And it wasn't as though they could do all of that volcano-comet-nuclear bombardment business to start the warming process—that looked a lot less rosy when you were actually standing at ground zero.

However, Rourke had a full-on oxygenated atmosphere. After their emergency decamping to the surface, Renee had driven a search for alien life, because received wisdom said that biological processes were where free atmospheric oxygen came from. Oxygen was—to quote Mikhail Elesco, the team's top geologist—a needy bastard that couldn't stand not to be in a relationship, no matter how toxic. You didn't get lots of oxygen unless something was separating it from its romantic partners and kicking it out into the street. So they had spent a lot of valuable terraforming time not finding the locals.

It was nasty out there. There was quite a lot that was poisonous, though not enough of any one thing to kill a human outright. There was still a lot of ice, and the weather tended towards sleet and blizzards irrespective of season. Renee and her team looked for life so hard they almost died. They discovered plenty of carbon-rich molecules but nothing so much as a microbe.

In the end it was the geological sciences team, led by that same Mikhail Elesco, who unpicked the puzzle. His conclusion was that Rourke had likely formed in the outer reaches of its solar system where an icy shell could build over its rocky core without being blasted away by the solar wind. An encounter with some now-vanished other body had swung the planet into a closer orbit to the sun, introducing a whole load more ice into the inner solar system than you'd normally expect to find in one place.

The action of sun on ice, he suggested, had resulted in a world with plenty of cold oceans and exposed land. And millions of years of radiation had cracked water into hydrogen and oxygen faster than the oxygen could repatriate into oxides. The process would probably peter out some time in the distant future, but right now enough oxygen had stuck around in Rourke's atmosphere to allow an Earth human to breathe, whilst its erstwhile molecular partner hydrogen had escaped off into space. At the start, with their ship limping about in orbit but still gamely functional, it had seemed like a godsend: a kickstarter for the terraforming process. They could start laying down Earth life and it wouldn't immediately suffocate and die.

Then Earth's parting gift arrived and all their systems had fallen over. They had food and water and jury-rigged some essentials, with the air of Rourke cool, crisp and clear. They did their level best to survive, and even though they didn't, something else did.

III

Seventeen scientists stranded on a planet whose air they could breathe, and yet they never made it into a paradise. On Rourke, the same geochemical processes that were freeing the oxygen were freeing up a lot of other compounds out of the ice too. It was a process eerily presaging the way Earth itself would go when it crawled out of its war-driven ice-age into humanity's brief second chance in the spotlight there. Before the end of it all, and the ark

ships. Nothing on Rourke was so toxic that people just dropped dead of it. If they'd had the resources of the *Phoenix* they'd likely have been fine. Instead, there was a constant erosion. Rourke's seasons unleashed a regular flow of teratogens and toxins that got everywhere, including the bodies of the terraformers, no matter how careful they were.

Renee gave the talks herself, as she experimented and researched, and the drain on their medical resources mounted up. Rourke was devoid of life but awash with organic chemistry, she explained. It had lots of carbon-based molecules that interacted badly with human biology. The terraforming team were invaders from another world being slowly defeated at the hands of something less than even a microbe.

Yet Rourke did have life, because Renee and the others had put it there. They had worked around the damage caused by the virus sent from Earth. They had bootstrapped one machine and facility after another back into being, grimly, over however much time each one took. They had rebuilt their scientific toybox one broken doll at a time, all the guts of the *Phoenix* that they'd brought down. In the end, having restored everything capable of resurrection, they were equipped for one thing. They could make the world live. There was a tentative optimism to those early years that would still be recognizable millennia later to Miranda, as she absorbed the colony's records. Renee and Mikhail and Alex and the rest, they were all children of Avrana Kern's dream, born to bestride the universe. If the planet was inhospitable, then their science would wring a welcome from it. They would transform the cold and toxic world of Rourke into their own paradise.

They threw together microbial systems whose tiny components could breed and prosper before Rourke's chemistry was able to cause them problems. As soon as the swift-multiplying microbes had gained their foothold, Renee wasted no time in setting up a four-tier ecosystem in the region around the habitat. People were talking about plant life, animals, domestic pets, livestock, great herds trampling the new grasslands of Rourke. Their sense of optimism and personal power was irrepressible.

Ten years in, Renee had got as far as keeping insects alive, because the stop-start growth patterns of their moulting were good at resisting the teratogenic influences of the planet's molecular chemistry. She was just starting her nineteenth attempt at introducing more complex forms of life, because nobody, she was very certain, would want to live on a planet ruled

only by ants. It was all a careful juggling of ecological niches, food webs and predator–prey relationships, as per her training. You didn't just empty out a bucket of species and see which ones didn't keel over and die. Terraforming was a precise science.

Twenty-five years in, she was throwing every living thing at the wall to see what stuck. By then eight out of the seventeen terraformers were in intensive therapy, because people lived a lot longer than ants and the alien chemistry crept in. Enough exposure over time and the alien molecules built up and jostled for elbow room with Earth biochemistry. Her mice had just about survived, with heavy litter mortality and widespread birth defects. The rabbits had clung on, hideous and changed. The earthworms were too big. The snails died. The sheep died. The trees died. The ants were fine, the fuckers. She hated the fucking ants with a passion, even though just about every other lame-duck crippled thing was eating them.

Fifty years on and more than half the team was dead, because everything was still breaking down and that included their medical facilities. By then Renee reckoned that the ecological network of maybe fifty species she had set up might just wobble along for a while without spectacularly imploding. The land outside the domed habitats of their base was a wretched catalogue of the deformed and the sick. Only weeds grew, warty with tumours. The ground seethed with mobile carpets of scavenging ants which other things ate, and, when they died, were eaten by the ants in turn. There were spindly-limbed, long-eared things that were a world away from the cuddly rabbits Renee had once kept as pets, eyes bulging monstrously and pelts raw with scabs. There were miscellaneous rodents, a melting pot of disparate genetic lineages, shuffling about like hedgehogs with tumours instead of spines. And if you ventured too far from the human habitation, life became sparser and sparser and more miserable still. Because even the disaster-taxa ecosystem Renee had managed to field was dependent on the waste, heat and shelter afforded by their base. She had set out to make paradise but instead constructed their very own extra-solar hell.

And that was when the ailing Alex Tomasova, Overall Command and still just about alive despite everything, turned up to talk to her about the corvids.

They had tried to wipe out the corvids long before. The birds—a species of crow bulked out with raven and magpie genetics—had been released into the wild, as though Renee was Noah looking for some sign of hospitable land. The corvids had taken a serious look at everything that was out there, not liked it, and come right back. They had thronged every nook and crevice of the dilapidated habitat complex. Both the lived-in sections and all those abandoned parts that had fallen into ruin because of a lack of maintenance and manpower and sheer will. And they had prospered, like almost nothing else had, except for the fucking ants. They prospered because, as with the raccoons and the hideous, starved foxes, they sensibly wanted nothing to do with the wider planet Renee was trying to introduce them to and scavenged off whatever the humans left behind. The corvids also had a habit of investigating absolutely everything, including things that were part of the infrastructure. They had become a plague that refused to go out into the wilderness and die like everything else.

Many years before, the most able-bodied colonists had waged a war against the corvids. They had poisoned them, shot them, netted them, even resorted to just throwing stones when all else failed. They had broken up their nests and smashed their eggs. Renee had protested, but by then they were few and had no real societal structure left. Everyone just did what they felt was right. And what most of them did was drive the corvids into the wilds because they couldn't stand the noise and the mess and the constant sabotage any longer.

Now, decades later, the birds were back, building new nests, squabbling, and dining off the corpses of the ninth-iteration sheep Renee had bred, which were still just about holding out against Rourke. Nobody was exactly delighted to discover the wretched birds hadn't died in the desert after all. However, as the corvids hadn't descended upon the remaining working habitats and plucked them apart for nesting material, a de facto truce had arisen born of human apathy. Renee, worn-out, had made repeated mental notes to go see how the birds had managed to last this long, and never got round to it. She had a to-do list that would last longer than she would.

“Tell me about corvids.” Alex Tomasova had been a hale, solidly built woman once. Now she was a skeleton clad in oversized amounts of greying skin, blotched with melanomas and the taut lines of surgery scars. So Renee told her about corvids and then Tomasova said, “Now let me show you what

they're doing," and gave her the evidence, in maintenance logs and surveillance footage and power distribution maps.

Some corvids had moved into the ruin of a habitat they'd previously shared with the retreating fringe of human occupation, and which the humans, left in possession of the field, had abandoned anyway. The birds were keeping a wary distance from people, apparently remembering just how things had gone last time. The retreat of humanity meant that there was plenty of man-made material to scavenge, though, and they had busily descended on it all and built nests in the abandoned dome. They flew in and out through the tattered holes they had pecked, and carpeted the floor with their ashen droppings.

So far, so expected. Renee tried her best to hide it from Alex, but she was wanly delighted by the birds' persistence. They hadn't just died out in the cold, as ninety-five per cent of everything else had. They hadn't even returned mutated and hideous: still recognizably the same glossy black birds.

"We may as well let them stay," she suggested. This time she'd carry the argument, she knew. Nobody had the energy to go and drive the corvids out, after all.

"That's not it," rasped Tomasova, one shaking hand directing her attention.

This new crop of corvids seemed to have higher standards than the generation which had been driven out into the wilderness. They'd fixed the power and turned the heaters back on.

V

The offloaded cargo from the *Phoenix* had included a vast genetic library of Earth life, but the sad truth was that most of that life had been extinct on Earth since before Renee Pepper was born. The final throes of conservation had been not the preservation of living animals, but the recording of their genomes in the hope that some opportunity might be found to reconstruct them and their complex web of relationships. The majority of species vanished without even that epitaph.

Kern's terraforming initiative had been seen as an opportunity to right that old wrong, deploying what had been saved of Earth's biodiversity on virgin

territories amongst the stars. It wasn't the way Kern looked at things. From her perspective, it was neither the right way to approach exoplanets nor conservation. It had been a good way to win over certain groups and viewpoints to her cause, though, and to Kern, her vision was everything.

But there had still been corvids on Earth when Renee left. They were amongst the adaptable species that had found ways to fit in amidst the cracks; to use what people left behind, to eat the waste that people didn't want. They jostled for wing-space with the gulls and pigeons, fought the rats for leavings. Humans tended to regard all these scavenger species with a certain derision. *Filthy, diseased, debased*. Not seeing that the simple ability to live in the interstices of human society was in itself a prime evolutionary adaptation and the mark of ingenuity and success.

Those wild corvids, the stock that had informed the *Phoenix's* genetic library, were notoriously bright birds, fiercely inquisitive, tool-users in a limited sort of way. Wide-ranging scavengers, always up for investigating something new to see if it could be eaten. They tended towards strongly monogamous pair-bonds, and while that might have seemed an odd trait to highlight, Renee discovered that it would be very important on Rourke. They were highly social animals, capable of recognizing individuals—corvid and human. They had a limited ability to count and a profound ability to solve problems in novel ways. They were birds, from a human point of view, trying very hard to be human. At the point of the *Phoenix's* departure, Earth had been so much of a human world that even actual humans were finding it hard to be human enough to survive it.

That was what they took to Rourke, written in shorthand and ready to be reconstructed. While the snakes and the cows and the frogs and the bees and the deer that Renee tried to slot into the wobbling tower of her new ecosystem all reextincted themselves, the corvids had at first clung on by hiding under the skirts of their makers. Until they made a sufficient nuisance of themselves that their makers couldn't abide them any more.

VI

The corvids had been driven out of the promised land and into the wilderness, where the survivors did their best to scratch a living from the soil. This was

what Renee's researches concluded, as eventually digested by Miranda. By then there was at least soil, and there were the ants whose indefatigability had so oppressed Renee. There were also various other bugs in precarious niches exploiting each other, as well as the sparse selection of plant species in the shambles of an ecosystem she had been able to engineer.

The birds shared the wilderness with a nightmare menagerie, fuel for the dreams of tormented children. There were starved-looking mice which had already evolved to breed smaller litters less often, cutting their cloth to suit their purse. There were the appalling rabbit-forms, all stilty long limbs and bulging myxomatized eyes. There were raccoons like shambling dwarf bears, prone to seizures and frothing frenzies because of faults in their reconstructed genomes. Those corvid-ancestors found themselves driven into a veritable postapocalyptic wasteland of malformed and damaged animals, save that the apocalypse was still going on. Because out there, chewing on the edges of all the land that Renee and the others had seeded with Earth life, was the world of Rourke, with its toxic geochemistry. It was an angry and reactive system. It was jealous. It was not a good neighbour.

Rourke had a thousand ways of triggering cancerous reactions within an Earth-evolved body. Molecules of such shapes and corrugations that they fit into a terrestrial biochemistry like glue in a lock, fouling metabolic pathways, accelerating cell growth where it wasn't wanted, suppressing it elsewhere, sabotaging the immune system. The bloody ants and the other arthropods could escape the worst of it by having brief lives and only growing in sudden spurts. But anything that wanted to live more than a few months would start to rack up the replication errors. Those species that survived long enough to get to generation four or five would usually have a stable set of eventually fatal impairments, a particular broken key that worked in their metabolic lock just well enough. So yes, the raccoons weren't having a good time of it over on Rourke, but they lasted long enough to breed more raccoons who would continue not to enjoy themselves very much. Which was evolution's endgame after all.

In the last years of her life, Renee Pepper would finally realize that she had, in fact, succeeded in bringing enduring Earth life to Rourke, and she would look at what she had wrought and weep.

The corvids, though. After knowing the comparative luxury of human leavings, they had been thrust into this hellscape, two by two, and most of

them had died. Which is also the story of evolution. The survivors had been those who didn't die, which in most cases meant they were able to live slightly longer with the products of an alien geochemistry infiltrating their bodies, whilst still hunting out food in a wasteland and staying together long enough to raise a new generation.

And it was chance. It could just as easily have been the raccoons. A change to their brain organization and chemistry, reconfiguring itself about complex tumours in two specific ways. Renee did her best to find birds already dead of other causes, but a fair few gave their lives in the name of science as she anatomized their brains. As she picked apart their novel mutations to find out just what had grown out in the wilds of Rourke before coming home to roost. As her learning developed, she began to see herself as a latter-day Frankenstein, whose creation has shambled home from the icy wastes for a final confrontation. Save that, instead of horror, it brought a kind of hope.

She liked to think that, despite his overweening arrogance—a trait she and Kern surely shared with the fictional doctor—even Victor Frankenstein might have softened towards his creation if he had been the last human left in a world where only monsters could survive. And there was definitely something of the monstrous in the brain structures she uncovered. But sometimes a little monstrosity is what you need.

From there she caught some birds—or just invited them into her lab, made them her unwitting research assistants into their own cognition. Or perhaps not so unwitting. She was old by then, and unsure, and had strange fancies. She tested them independently, and the results were disappointing. Then she tested them two by two, like a good Noah, and did her best to make sense of the remarkable data this produced.

Miranda, poring over those results at so many years' remove, would later hang in the *Skipper's* zero-G watching her own two Corvids wake, trying to understand.

Some birds had become hyper-obsessive about detail, their natural curiosity for the *new* honed to an almost preternatural awareness. Coasting high over the blasted landscape of Rourke, they noted every little thing, each discontinuity and novelty leaping out at them. They had in their little brains a perfect recollection of how things had been, so that every change screamed in their minds, demanding attention. Attention they were unable to give it,

though. Their mental resources were spread across everything they could see and hear and sense, caught up in a comparison of *now* and *before*, and no more able to affect the former than the latter.

Then there were the others, who could see none of this. So unable to focus on their surroundings that they should surely have died to marauding raccoons in a moment, had they not had another pair of eyes watching their feathered backs. Instead they were monomaniac problem solvers, who would still be trying to get a treat out of a bottle just as the frothing raccoon ate them, unable to stop until they'd found the precise angle that would solve their difficulties. So, two stable sets of neuropathies, equally non-viable, save that if you ended up with a matching pair, the recognizer and the solver, you had something like a complete unit. The corvid pairs—because individually they were no more than smart birds and sometimes that wasn't enough—had returned to Renee Pepper as accelerated learning machines. A perfect balance of opposed and equal neuro-divergence. Any corvid that failed to bond, or that bonded with a mind of its own type, was a dead end. The species that came back to Renee consisted of a phenotype split between individuals.

While the raccoons and the rabbits and the mice, and even the ants, just about clung on, the corvids had collectively become something greater and more complex. Their lifelong pair-bonding, selecting one of each brand of damaged mind, made every pair into a new compound individual, greater than its component parts. The ravens cast out from the ark had returned, and they carried a lifeline in their beaks.

VII

Humans were an ecosystem. In the case of the Nodan microbial entity, this turned out to be literal, but even back on Earth humans created challenges and opportunities for other species. Their places and modes of life were rough bricks, in between which were gaps and niches that other creatures could adapt to fill. The returning corvids—or perhaps they were Corvids, capital C, following their days in the wilderness—inherited a complex landscape made of all the things the humans on Rourke had abandoned. The lost habitats, the defective infrastructure, the failed fields run wild and sickly. All of it new, to be obsessively catalogued and analysed by one half of the

communal Corvid brain. It was then passed over for the other half to consider. *What use can we put this to? What patterns can we find?* They investigated the last little redoubt of living humans and saw similar patterns, but ones that were complete where their former discoveries had been abandoned in disrepair. In their obsessive–compulsive way, they began to work on making everything look *right*.

Perhaps some just tried to degrade everything to the same level of brokenness, but the ones working to *restore* ended up with heated rookeries. And that, too, was evolutionary selection.

When the remaining humans were too few and too listless to threaten them, they moved in. They shadowed their creators and listened to the noises they made. They repaired the systems, restoring the patterns, pouncing on each incidence of the *new* that they found, and working out what to do with it. They expanded their tool usage by watching what the humans did, because there was relatively little two hands could do that two Corvids couldn't. They grasped the concept of displays and touch screens, virtual spaces and data architecture. To one side of their nature, these were just new spaces demanding to be explored and made familiar; to the other, they were puzzles to be solved, restored and adapted. Just as they had before they were driven away, the Corvids got everywhere, but this time they left order behind them instead of chaos.

Renee talked to them, because she was old and lonely and had always stubbornly liked the birds, even when everyone else was trying to drive them away. And, when she was very old indeed, they talked back. Her mind was going by then, sometimes on Old Earth, sometimes here on Rourke. So the Corvids fed her, the last survivor of the *Phoenix*, which had itself streaked across the sky like its namesake a decade earlier. They tended to her and spoke to her and passed her words one to another. She was never sure—in her lucid moments—how much they were thinking and feeling and understanding, and how much was just her own words parroted back to her. The Corvids, for their part, saw the degrading pattern that was Renee Pepper, and they hunted through their entire extended repertoire of tricks, which by now included a restored computer database and medical facilities. But she was the one thing they could never fix. And later, when she was gone, they would take turns being her, speaking in eerie echoes of her voice, perching where she sat, a raven's remembrance.

VIII

Miranda ran out of Renee Pepper's words, the last will and testament of one more long-gone terraformer. One of the list of honour whose remains had now been recovered, in the form of the records preserved by the birds. From then on, absent any human input, the story of Rourke became a kind of fog. The birds themselves had plainly prospered, and they had maintained and replicated the human technology that had given birth to them. There must have been a vast history of struggle and expansion unspoken of in the accounts Miranda had access to. The Corvids did not write down their own histories. They just preserved those handed down by their creators, beyond the standards of the most exacting archivist. Yet they themselves were almost absent from their own story.

Miranda tried to picture the events of the intervening generations. The Corvids had expanded across their entire world, controlling machines, building new habitats, utilizing the knowledge set down by their progenitors. They had mined and manufactured and engineered, and yet they had never taken anything further than the terraformers had. They had inherited an ailing vestigial limb of a high-tech society, and had maintained it in precisely that condition.

When the Portiids and their cohorts arrived, long after, every corner of Rourke had yielded to the encroaching of Earth life. Renee Pepper had left her avian heirs an incomplete pattern, and if there was something the Corvids could not help but pick at, it was that. They had taken experiments in miniature and reconstructed them on larger and larger scales, wheels within wheels. They had followed the logic of Renee's notes in the computers that they maintained in immaculate functionality. Mutation crept into the system, of course, but the Corvids as a whole were self-correcting to a fault, and while one half of each pair was obsessive about anything that looked out of place, the other half was always able to rearrange the pieces of whatever they found until it fit the plan. The terraforming of wider Rourke was accomplished smoothly over centuries without the Corvids necessarily understanding *why* they were doing any of it. Save that the ones who were best at it prospered most, had more viable offspring, and inherited a

disproportionate slice of the future.

They programmed meticulous reproductions of the expedition's robots and vehicles to carry materials and components to wherever they chose to settle. They raised roosts and rookeries that were a ghostly echo of the human habitats they had once known. They continued to spread the same malformed menagerie of Earth life across the planet, and actual honest-to-goodness evolution meant that at least some of the involuntary exocolonists, rabbits, rats, raccoons and the endless supply of ants, adapted and clung on. The occasional glitches in their reproduction, of machines or places or beasts, usually resulted in a failure that was abandoned or reworked, but sometimes hit upon an improvement that seemed—to the other half of their collective consciousness—to fulfil the Plan better. They had grown to consider patterns more in the abstract than a wiring diagram or computer code.

And, just as it had been to Renee, it wasn't clear to Miranda precisely where any actual *thought* lay, between the Corvids' two disparate mindsets. What had seemed to be a perfect civilization, complete with a recognizable technology and language, just dissolved into mechanistic repetition and instinct. The avian lords of Rourke could hold a human-sounding conversation for an age and then just break apart into a chaotic wheeling flock of noise. As though, for the duration, the ghost of an ancient human had been called into being by the presence of two or four, or some other even number of birds, fabricated between them by their chatter. Only to vanish away into rumour and fancy in the hard light of Miranda's critical examination.

5.3

Miranda watched the Corvids. They had come out of the cold sleep easily enough. Kern had calibrated their chamber based on Renee Pepper's carefully preserved notes, and the birds themselves had improved upon that. Surely that was intelligence.

They were no longer dismantling things within the ship. That also might have been intelligence, but it seemed to her they had simply finished that phase of their investigation. Now the birds were at a console, exploring the ship's inner world of data under Kern's watchful virtual gaze. *They are ambassadors of a new sentient species, which we will eventually formalize communication with*, was the theory, but Miranda had no idea whether they were two intrepid explorers aware of where they were and their wider place in the universe, or if their innate drive to investigate and deconstruct the new was just running riot after encountering this unheralded wealth of novelty.

An empty volume within the ship's archives had been set aside for them and they were filling it haphazardly with information taken from the libraries. It seemed to be copied in all-anyhow, great chunks of the Rourke material interspersed with novel information they could never have come across before. Star maps, journals, technical manuals, encoded Octopus and Portiid art, all jumbled together. Yet Miranda felt that she was watching a pattern being assembled, just not in any logical way that a human would go about it. If she waited long enough, she felt, the entire volume would be completely filled, not an ant's worth of space left un-tenanted.

Building a nest for themselves, she thought, but that was a human idea straight from the Miranda-consciousness she was adopting. They still looked so much like regular birds. Show an ancestral Earth human one of the Portiids and they'd be breaking out the flamethrower. Show them the Corvids and they'd just think they were on the large side for ravens.

"Do you know what you're looking for?" she asked them. In fact only one

of them was actively searching the ship's archives. The other one just hunched patiently by the console, taking part in the constant croaking back and forth of noise between them. Then the first—Gothi, the female—would come back with a new snippet of information and the male, Gethli, would start adding it to their little trove.

Gothi cocked her head at Miranda, seemingly surprised to find her there. “To strive, to seek, to find, and not to yield,” she rasped, and then turned back to her work.

“What was that?” Miranda asked. Like everything the birds had done so far, it seemed intelligent yet weirdly elliptical.

“It's in the records from Rourke.” An image of Kern manifested, apparently so the AI could look disgruntled. “I feel I should know it.” Her face went blank for a moment—so absolutely blank Miranda knew she had just abandoned the projection to search her own piecemeal memories. “I believe it's literature, though neither I nor the Rourke data records the source. Which means, I suppose, that information is lost forever. They are parroting, however.”

“It seemed... relevant.” Miranda wondered if she would end up communicating with the birds solely through quotations, and how annoying would *that* be?

“You were talking about looking for things. They gave you a reference relating tangentially to searching. Nothing a very basic algorithm couldn't replicate,” Kern said dismissively.

“You don't think they're truly sentient?”

Kern said nothing but her expression suggested she was already losing interest in the birds.

The pair of them separated every so often. They had worked out how to adjust for the lack of gravity and one or other would stretch its wings in rapid, ludicrously acrobatic flights about the confines of the crewspace. Miranda tried to buttonhole each individually, in case they'd be more talkative. Neither wanted her anywhere near them when they were separated, though. They really did just seem like animals, in those moments: eyeing her warily and keeping their distance.

Kern's plotting of their flights showed that Gothi's paths always followed

novel patterns whereas Gethli's tended to be iterations on Gothi's, sometimes in ways that conceivably demonstrated mathematical proofs, depending on what you measured and how much you wanted to squint at the results. Again, proving nothing.

They woke Paul next. The Octopus bulged out of his own nook in the wall and spent a while composing himself, skin rippling with colours and patterns that the birds observed keenly. Miranda prepared a slate and briefed him on what she'd learned, which was a very elaborate and thoroughly annotated nothing. After that she watched him trying his own means of communication. His shifting skin and writhing arms fascinated the birds, and they began to add data to their little archive that recognizably tracked his moods and movements, using the sort of notation the old terraformers might have resorted to. There was no suggestion that they understood him in any way, or even perceived him as a sentient being.

Miranda was becoming frustrated by now. She was very used to understanding everyone. Even watching the elegant dance and art show that was Paul speaking, she could tap into her inner octopus and translate effortlessly. It made her human body feel dull and restrictive; she longed for her own clutch of boneless limbs and a hide like a blank canvas.

I should... But of course she should not. *We do not do that any more.* There needed to be an informed first contact, before she started taking birds into herself, and herself into birds. Exploring their minds from within.

"I had thought," Kern's ghost was at her shoulder again, "that they might be a hive, like the ants. Though as these two seem as functional as the whole flock was, that's plainly not the case." She meant the ants from the world which bore her name, the computing substrate for Kern's own consciousness. They were capable of a great many complex things in the wild, but appeared to have no consciousness, just a very complex ability to problem-solve and innovate. There was no *I* in *ants*, as Kern drily remarked, whereas there was one in *spiders*. A joke that only made sense in the ancient language she spoke.

Miranda explained it to the birds, who seemed to have that elder tongue as their own second language. They regarded her brightly and she had no idea whether they understood or not.

Kern suggested they resort to the experimental methods of her own memory, requiring the birds to solve puzzles and problems if they wanted to

be fed.

“Hardly a way to treat ambassadors,” Miranda pointed out.

Kern’s image spread immaterial hands. “Are they, though? Or are they just pets at best, stowaways at worst. Plainly something happened on Rourke, but it wasn’t the uplift procedure that resulted in Portia or Paul. It was just an Earth species interacting with an alien chemistry under harsh conditions, and finding some chance set of mutations that allowed it to survive. You saw their world. They didn’t *do* much with it, in all that time. Not like the Portiids.” She had a lot of proprietorial pride about the spiders, for all they were an entirely unintended consequence of her actions over Kern’s World. Kern’s patchy memory of who she was, Miranda suspected, resulted in her glossing over her own failings unless actively confronted with them.

They didn’t start treating the birds like experimental subjects. In fact, there was no need to. Give them access to a puzzle, a maze or any kind of logic problem, they would descend on it gleefully and solve it in short order. Show them the same puzzle again and Gothi would generally ignore it, while Gethli might rearrange its components to make a different thing entirely. Complex behaviour, redolent with hidden meaning. Or just frustrated instinct.

By now the *Skipper* was making good headway through the system, towards the inner world that might or might not have been terraformed, and Miranda was itching to start turning the ship’s eyes that way. The birds seemed a dead end. One day, the Miranda she was being felt so frustrated with getting nowhere that she tried to lock them out of the computer system. They had workarounds almost immediately, so then she fought them with workarounds of her own, borrowed from the playbooks of minds within her, more technically adept than Miranda’s. But the speed with which the birds had learned the *Skipper*’s systems was remarkable. The whole thing became a new puzzle that the birds threw themselves into and eventually Miranda had to enlist Kern to restrict them to their own archive.

After which, she received a delegation.

For whatever reason, the birds decided to walk to her. They strutted around the curved wall of the crewspace, clutching at the straps and loops to keep themselves grounded. Wings folded and heads high, they had a pompous, self-important air to them that she probably shouldn’t have found comical. Instead, she pulled herself to the wall, oriented to match them, sitting cross-legged to be more at their eye level.

They stared at her and preened their feathers a little, like a human clearing their throat. “We demand the return of unfettered access to all areas,” Gethli told her in his creaking voice.

“I’d like to talk to you, if I could,” Miranda said carefully.

“I am a free being with an independent will,” Gothi rasped.

Kern made an amused noise, and Miranda shot her avatar a look.

“We’re getting somewhere,” she said.

“It’s another quote. The words immediately before, for your reference, are ‘I am no bird.’ It’s all still parroting. There are recordings from Rourke of them approaching their original benefactor there, just like this. They’re resurrecting old strategies, that’s all.” She jabbed a holographic finger at the birds. “Give us another one.”

“Lock up your libraries if you like, but there is no gate you can set upon the freedom of my mind,” Gothi trotted out obediently. Another quote, according to the Rourke records, which had restored a chunk of terraformer-era culture Kern had entirely lost. At the same time, they were words that seemed germane to the topic. Maddening.

Miranda met the button-bright gaze of the two birds. She needed to ask them the big questions. She had always believed that intelligence was the galaxy’s great jewel and its shine would be unmistakable wherever you found it. Alien or Earth-born or artificial, there would come a moment when your perspective flipped and you recognized the *I* across from you. And yet here were these birds who could perform all manner of complicated tricks, but she could meet the gaze of Gethli or Gothi and see only her own reflection.

“I have more bad news, if you want it.” Kern was always up for sharing bad news.

Miranda was already restoring the birds’ access and privileges. “Why not?” she asked. The Corvids hadn’t immediately abandoned her, anyway. Instead, apparently she and Kern were the new puzzle they were observing keenly.

“Initial long-range data from the planet isn’t exactly encouraging,” the AI told her. Paul was drifting over, partly jetting, partly using his arms to hook and swing across the crewspace like an eight-limbed ape. The relevant information was projected for everyone to pore over.

“Not a particularly verdant place,” Kern pointed out. Indeed their target world was mud-brown with ice about the poles and dark seas. She compared

it to her borrowed memories of Earth, and then to Nod. The former had been dying and the latter had been alien and both had looked more interesting than this new world.

“Initial readings suggest oxygenated atmosphere at least. A very early stage of terraforming, I’d estimate,” Kern told them. “But if that’s as far as they got...”

“Further than they got on Rourke,” Miranda pointed out desperately. “And that had an ecology.”

“An ecology—a human-scale ecology anyway—is something I’d expect to see evidence of at this distance,” Kern pointed out. “I don’t think we’ll be making any great discoveries. Just one more failure of the programme to add to our records.”

“Everything is a discovery,” Gethli said.

“Only the first time,” Gothi added gnomically.

They stared at the birds, who plumped up their feathers, ignoring them.

Paul’s arms described a complex arabesque. Miranda translated it as a suggestion that they use the birds as survey tools. *Again, not the way one treats ambassadors.* Except “survey tools” seemed to be a better way to describe what they were.

Soon after, Kern manifested in the centre of the crewspace, half again as large as life and startling the birds, Paul and Miranda.

“I take it back,” she announced to them. “I’ve detected signals from the planet.”

PART 6

A WORLD IN A GRAIN OF SAND

Imir

Now

6.1 Liff

When they hear the thunder of the *Urshanabi* through the upper atmosphere, everyone downs tools. Even Liff gets to take a break from the Pie-Ed teaching programme that grandmother set for her, and comes out into the beat of the midsummer sun to watch the old heavy lifter shuttle make its descent. She's seen it before, yes, but not for two years and when you're twelve that counts for a lot. And she isn't actually "twelve." She had a big argument with her grandmother about it, her parents making their absence and lack of taking sides pointed. Rather than the Old Sacred Earth Ways that grandmother remembers and cares about and talks about all the time, and that Liff can't understand or see the relevance of. *I'm twenty-six*, Liff insisted to herself, even after Granma Esi had told her not to talk back, which was the last word on the subject. What was the point of keeping the time of a planet they'd all left behind?

But then if Granma Esi had her way, everything would be Earth Earth Earth. Even the tests Liff was supposed to be completing were Earth things and, although most of that science and maths still worked on Imir, it wasn't as if she needed to know about wars and presidents and disasters and Earth. Especially as everything on Earth seemed to be about bad things happening to people. So bad, in fact, that Granpa and Granma and all the other Founders had got on the *Enkidu* and travelled all this way to live on another planet. And even the name of the test software she's forced to use is an Earth thing. Each time she completes a module it slots another wedge into a graphic until a whole circle's completed. Apparently that's "pie," and it's yet another Earth thing that Granma Esi will go on about forever if you let her.

There's an odd mood about the crowd gathered to watch the shuttle come in. One of those adult moods where Liff knows nobody'll really explain things to her. But she's a sharp girl and she sees how people are keeping well back from the landing site, and making sure she does the same. It was two

years ago, but she doesn't remember the descent of the *Urshanabi* being quite as loud as it is this time. The last of the red-hot heavy lifters is what Granpa Heorest calls the old ship, and he's in it now, on the way down. In her mind he's at the controls, even though he's an old man. He flew the *Enkidu* all the way from Earth, after all. And although, intellectually, the twenty-six-year-old Liff knows he was asleep almost all the way, her early imaginings of him sitting in the pilot's seat all the way are still lingering at the back of her mind.

The great metal brick of the shuttle, ugly with repairs and with some parts of it still glowing red-hot from its descent, shudders and slides in the air, an impossible thing. Liff used to ask if she could go in it herself, up to the *Enkidu*, up to the stars. She's too old for questions like that now. Two years since the *Urshanabi*'s previous flight, and a real tension—some arguments even—before they took it up this time. It's not like the *Enkidu*'s such a treasure-house of essential Earth tech any more. Letting Granma Esi talk your ear off, all those memories the old woman has, you'd think they had the whole of Earth still up there, just waiting to be made into real things with the last of the working printers. Except Liff's heard Olf talking about holds stripped bare, even the walls opened up to get at wiring and components. They're not plundering a tomb, they're robbing a corpse, and the difference between those two things is scale and longevity.

And yet there's something else. Most definitely one of the things nobody talks about to Liff, or the handful of other children who've been born on Imir to Imiri parents—younger than she is because, as everyone won't ever stop telling her, she was the first. As though the whole expedition from Earth was purely for her benefit and she ought to be damn well grateful for everything. Yes, there's something else about the ship orbiting above—she's calculated the orbit for Pie-Ed, got top marks and completed a whole circle to a tinny little fanfare—something nobody says, and that weighs on everyone's head. Just one more frustration of being twenty-six and a child on Imir.

The *Urshanabi* has a final bitter argument with the atmosphere, slips sideways to a horrified gasp from the crowd, and then shudders back into line, its landing gear extending like arthritic fingers to cushion a final descent that's still a little fast. Liff hears a horrible groan of overstressed metal and the final resting position of the shuttle has a definite tilt to it. Engineer Olf has been reading off something from a handheld display, and he holds his hand up to stop anyone approaching until he knows it's safe. He's a gnomish

little man, not that much taller than Liff is, but when her grandfather's not around, Olf's one of those whose words carry the weight. When he's not doing his job, he's all jokes and conjuring tricks and cackling laughter, and Liff likes him a lot. With his Engineer hat on, he's all iron and serious.

When they let the ramp out from the shuttle, it doesn't meet the ground squarely, and everyone has to lurch down it at an awkward angle, skidding and stumbling because the helpful corrugations of its surface are all skewed. Granpa Heorest makes the ground first. He's wearing a suit, like all of them, but his helmet's already off, Imir's bright sun gleaming from the silver of his long hair and beard. And his teeth, still white and mostly present. Liff waves and cheers, feeling the relief rush through the crowd. She isn't sure how dangerous it was, what her grandfather and the rest just did, but apparently things went wrong and could have gone wronger. But here they are, Captain Heorest Holt come back from his ship. *For the last time*, something in Liff says, and she isn't sure where the words come from, but they feel true to her.

He doesn't talk about Earth much, not like Granma Esi. He talks about the ship, though. His ship. His responsibility. When they print up some beer, he and the other Founders can talk all night, words and jokes and references that Liff can never quite understand. Good and bad things, and all of them needing to get talked out of everyone's system once in a while. Most often it's the five of them, those who founded Landfall and formed the Council and still make all the decisions. Granpa and Granma; spry little Olf; impatient Gembel who's younger and who's half taken-over from the old captain by now, because it's him making the farms work; scary, bleak-faced Halena Garm. Garm is with Liff's grandfather now, jumping down from the ramp as though all age ever did was make her tougher. There's a couple more familiar faces, and then a stumbling clot of newcomers. Liff counts twenty-three. Because they went up for supplies and raw materials, and to cannibalize a little more from the orbiting mausoleum that is the *Enkidu*, but they went for people too.

Granpa is beckoning folks closer now. He's calling out introductions, explaining who each of the newcomers is and what they do. Liff remembers listening in on the conversations Granpa and the others had, before the formal Council meeting where they made those words into a decision. What skills they needed. Which new bodies they could afford to support. Because the farms are producing now. They had food grown on Imir, even if it wasn't as

good as the printed food Liff preferred. Except there was only one printer left, and Olf seemed to spend half his working days fighting with it. She listens to a list of technical specialists, biosciences, immunology, physicians, mechanics. All people who, the last time they blinked in the light of a sun, it was Earth's sun. People who'd been asleep forever, up on the old ship. People who were going to have to learn a lot in a very short time because everyone had to be useful.

“And we've had to recruit an additional specialist, because we have a new crop of our own now,” Granpa is saying, and he's pointing right at her to some laughter from the crowd. For a moment she can't understand why. “Given the automated tutelary systems we have aren't exactly relevant to our new life here, this is Miranda Lain. She'll be working with the children to teach them what they need to know, both a general education and about our life here. Which means she'll have to do a lot of learning herself, I know, but I've seen her competencies and I'm sure she's more than equal to the task.” Liff stares at Miranda Lain as the woman acknowledges Granpa's introduction. Miranda Lain, who's looking about her at the little township of slab-built printed buildings and the new sky and the different horizon; breathing other air, shielding her eyes against an alien light. And yet she seems to take it in her stride more than the other new colonists. Or else, if not, Liff feels she's confused about different things. For a moment their eyes meet, and it's as though they're both sharing a question that neither of them can quite put into words. It's as though the ground shifts under Liff's feet, and all the things she knows about where—and *when*—she lives are about to slough off down the hillside in a churn of disconnected and contradictory facts. She sways, actually clutches for support. Nobody else notices their world tremble. No one except the woman on the ramp of the *Urshanabi* who stumbles, briefly, lurching into Holt and receiving his steadying hand on her shoulder.

Later, after Olf's people have started the unloading of the *Urshanabi* and he's run through everything on Gembel's ever-growing checklist, Granpa Heorest takes Liff out into the hills to see the plantation. Or at least Gembel takes him, and Heorest brings her along. He doesn't ask her parents, but then he's been used to being the captain for a long time. Even though it's Gembel who

has the most to say about how things are run on Imir these days, when Heorest Holt decides that a thing's going to happen, it generally does.

They're planning out another farm here, Liff sees. Gembel has a very careful set of calculations about the expanding agricultural effort. It's his life's work, as he'll try to tell anyone who'll listen. He's a stocky man, with a couple of chins and wispy fair hair receding back across his scalp. His words seem to catch and hang awkwardly as he speaks, as though there are hooks in his mouth. He can be abrupt, and he gets frustrated with his team. A couple of times Liff has heard him get into furious, spit-showering slanging matches with people about how things must be done. He doesn't brook anyone deviating from his very complicated schemes. Not an easy man to get on with, then, and Granpa Holt's one of the few who can go up against him face to face without making him furious, or making him sulk. At the same time, Granpa loves Dastin Gembel more than his own daughter sometimes, because Gembel is making everything work. He's said as much, when people have complained. *You liked your dinner yesterday? Gembel did that. He designed the rice you harvested last summer. He bred those pigs you're rearing. And a whole lot more.*

Pie-Ed is silent on the subject, but Liff has patched together her own education about how things work on Imir. You can't just throw a farm at a world and potter about on your tractor like the happy farmers in the Pie-Ed graphics. She's heard a lot about kickstarting an ecosystem from scratch. All the different things Gembel and his team have created or awoken or otherwise released from the box of the *Enkidu* onto the surface of Imir. A web of interrelated plants and animals all reliant on one another, all curbing one another's excesses. Gembel is terrible at actually putting it all into words, what with his speech and the complexity of the business, but his passion for it comes through. Liff is scared of him, and wary of his temper, but her grandfather's admiration for what the man's achieved has rubbed off on her.

The big-wheeled car churns up the earth past the side of the newly proposed farm, grinding uphill. And there are trees. They're not very big trees, twice Liff's height at most. They seem very thin to her compared to the graphics and images from Earth, but they're the only trees Imir has and Gembel is very proud of them.

"Fast-growing coniferous stock, basically," comments Gembel. He says it with a lot more difficulty than that, but Liff's used to it now and can surf the

ebb and flow of his eloquence easily enough. “Mycelial—the, ah—fungus culture to aid the roots, pollinators, that is... and... detritovores.” Complex words like magical incantations. When he talks about what he’s achieved, there’s an enthusiastic child in Gembel fighting to get out.

Granpa leans in to her, taking in the ranks of saplings extending as far as she can see. “We can build houses from them,” he tells her. “We’ll cut them down for timber. We’ll have a sawmill. Olf’s working on the sawmill, Dastin?”

Gembel nods absently, staring at the pale blue of the sky.

Granpa slaps at a fly, regards the smeared mess on his fingers philosophically. “I appear to have become part of your ecosystem.”

Gembel gives out a high little laugh. “Can’t control for everything,” he says. “Can’t—who knew they’d supplement their, their diet, hm? You know what’s good, though?”

“What—tell me something good,” Granpa prompts him.

“No malaria. We didn’t bring it. Why, I mean, I—why would we? Get bitten all, I mean all day, every day, won’t catch a plague from it. Not like Earth. No crop diseases killing everything. Not like Earth. Nothing but what we choose to bring. Utopia, Heorest. I know, I mean I—it’s hard now, yes. But in the end—better than Earth, maybe. The bad things, the... left behind us.” Liff’s shocked to see actual tears in his eyes. She thinks of the Earth Granma Esi is always talking about, with the incredible things they could do, that people have to replicate with hard physical labour here on Imir, as the old tech shuffles into silence. And then she thinks about what Gembel’s said and can’t make those two places the same planet in her head.

Granpa wants to move on, but for a moment Gembel’s distracted, looking into the sky again. Liff tries to follow his gaze and for a moment she thinks she sees a couple of circling shapes up there, just black dots against the pale sky. But then Gembel has the car in motion again and she’s lost them.

6.2 Miranda

Because it's harvest, there's too much that needs doing to devote space and time to something as novel as a school for the children. There are plenty of tasks for even unskilled labour, and Miranda learns about life in Landfall the hard way, putting her technical skills to use as everyone's second pair of hands. Because she's new, from nobody's family and set apart from all the established hierarchies, it's mostly the Council telling her where she's needed. Or sometimes they just bend her ear because she hasn't heard their anecdotes or grievances before. The captain himself, old Heorest, is generally too busy. However the classicist, Esi Arbandir Holt, is driven to find someone to talk to, and Miranda represents a convenient stooge. Esi wants to talk about Earth. In fact, of all the ageing first generation, she's the only one whose mind still seems rooted on that distant, lost world. Miranda is a bit hazy about Earth, to be honest, and if Esi had been all questions then her cover might not last very long at all. As it is, though, what Esi wants to do is talk, rather than listen. So it is that Miranda receives a second-hand and magnificently useless education about a world she will never visit, and how people did things there a few thousand years ago.

Sometimes it's Gembel monopolizing her, awkward and hunch-shouldered and pickling himself most evenings because of some burden of misery he won't speak of. Or else Olf needs another pair of hands at the pumps because some piece of ailing technology is on its last legs. Everything's been brought down off the *Enkidu* and then worked to death in the name of the new colony. Miranda feels she can almost watch a time-lapse of degradation. The most delicate and complex instruments and facilities fail first. The replacements rushed into service just in time are, of a necessity, cruder. Copies making copies making copies, and always with an eye to some sustainable baseline that their limited industry can achieve. Olf's team of old engineers, and young half-trained apprentices, are like people spinning a

hundred plates at once, rushing about from one to the next as they start to wobble. Everything is repairs over repairs. Right now his priority is keeping the very last industrial printer working because once that finally falls over, then their ability to make parts for everything else will evaporate. “Make printers with the printer, right I know,” he tells Miranda disgustedly. “Every Council meeting some bright spark has that one. You lose *fidelity*, though. The thing that can make fine parts makes you a thing that can only make medium parts, and so on, until you’ve got a rock that turns out worse rocks.”

Occasionally she finds herself standing before Halena Garm, who was head of security on the *Enkidu*. Those aren’t good times. Garm almost never wants help. She butts into people’s lives when they aren’t able to live the way you have to live on Imir. The main conversation Miranda has with Garm is the leathery old woman taking her aside and telling her that there’s no room for slackers and if she doesn’t shape up then they have uses for organic waste. Miranda has no idea how much of that is hyperbole.

There are advantages to being new and in nobody’s faction. She’s quiet and polite and a good composer of words, and so she’s able to inveigle herself as an adjunct to the Council. Little more than a glorified note-taker, composing to-do lists, but it puts her where she hears the big things said behind closed doors. Or half of them, because even in the seat of power a shadow hangs over people, an old wound nobody wants to poke at directly.

Arguments about the *Urshanabi*, which has been grounded all summer, and even now is being lashed by the first blasts of Afterstorm. In one meeting Esi Arbandir Holt stands up, passionately arguing about the repair budget, saying the shuttle must be their priority now. Olf demurs. No guarantee they can even fabricate the proper parts reliably any more. Exponential risk of catastrophic failure with each journey, maybe best to let it lie. Looking at his hands, avoiding the real issue which is right there in the room with them, an invisible presence. And, because nobody names it, Miranda can only feel about the edges.

Esi won’t let go, though. “We have a duty,” without conveniently setting out to whom it might be owed. Because *they* all know it and it’s an old argument, and if Miranda puts a hand up to ask, they’ll remember she’s not one of them. A spy, they’ll think. Because she is in fact a spy, she says nothing, just listens. Composes her own notes on an internal technology these people couldn’t even dream of. Olf would spit out his beer. Gembel’s

stammer would strangle him. Esi would leap to the conclusion that it was the world of the Ancients of Old Earth, and be almost completely wrong.

Olf has other priorities than the shuttle. He pleads the printers. He pleads the new agricultural machinery Gembel needs. And Gembel is talking figures, crop yields, calorific requirements, a chain of numbers that seem to be at cross purposes with what Olf has to say, and yet are absolutely arguing the same point. Arguing obliquely, without ever wanting to confront that point head on. Eventually Halena Garm takes off a boot and uses it to hammer on the decommissioned console they're using as a table, making everyone's beaker jump and spill. She's short on social niceties is Garm, shorter with each year as far as Miranda can make out, as though age is boiling everything out of her except the sinews of her work.

"Your grandchild, what's she called now, Esi? Liff, isn't it?" she says. A subject in search of a complete sentence.

Esi blinks at her.

"We made the choice a long time ago," Garm says, "Live like people, or live like machines. Even if Olf's overstating his case, Gembel's absolutely right. We can't afford luxuries, Esi."

"They're not *luxuries*." Esi sounds close to tears, and abruptly Miranda understands more about why Garm buttonholed her before. Garm's standard speech, for any newcomers to the colony. *You can't live the way you were used to. This is Imir and you need to live like you're on Imir, not anywhere else.* It was indeed her prickly pep-talk for the fresh arrivals, but at the same time it was directed at people like Esi. Esi, with her Earth-talk, who disembarked from the *Enkidu* with a whole wagon-load of invisible luggage brought from the old planet. Ways of doing things, memories of a lost life, yes. But more than that, beliefs in how things should be done. Concepts of fairness and decency that, Miranda feels, weren't actually practised even on Earth, but which had somehow survived in the ideal to be brought down here, just as extinct species had lived on in recorded genetic code. Brought to a colony world where every mouth imposed a burden on their limited resources. And there were more mouths every year because that's what happens with families, with children. Enough children that soon enough Miranda would be nobody's spare pair of hands but a dedicated teacher.

Then Holt stands. He's said nothing, through all this. He silences the debate, which was really just Olf, Garm and Gembel ragging on Esi. He's not

surging magnificently to the defence of his wife, though.

“When the storms are done,” he announces, “that’s when we’re going. When we can spare a few hands.”

Miranda thinks he means back up in the *Urshanabi*, awaits Olf’s litany of repair woes, but this is something else, apparently.

“Halena?” Holt asks, and the security chief gives him a little nod.

“With the new people assimilated,” a nod at Miranda, her representative sample, “we can do it, at last. The colony can spare us.”

A tension is strung between them, something long buried raked up into the light. People meeting people’s gazes. No unified front on this one. None of the others are convinced about it, whatever it is. An expedition. A journey into the unknown. But it’s Holt, and nobody goes against Holt when he’s set his mind to something. Not because he’s a tyrant but because he’s their captain and he’s led them this far and all of them, in their individual ways, love him.

“We won’t find it,” Garm tells him. “You remember. That first year.”

Holt’s got a strange smile on his face. “Well we certainly won’t if we don’t look, so...”

“Captain...” Gembel, with his lists of numbers, supply and demand, and a desperate race to keep the first ahead of the second by a hair’s breadth. But Holt turns his curious smile on him, and that’s apparently enough. A memory of something shared, between the people in this room. A promise, a possibility. As though Holt is a prophet with seven fat years in his back pocket, if only he can make all the portents align.

And Miranda can only grind her teeth because she’s patently excluded from the conversation.

Later, she skulks in the prefab building Landfall uses for all of its civic arguments, from small-scale dispute resolution all the way up to the Council. The actual Council has mostly gone home, but Holt and Esi are still there, and so Miranda lurks and eavesdrops and pretends to be preparing her to-do lists. They probably don’t realize just how acute she can make her hearing if she tries.

“You have to think of the children,” Holt is saying.

“That’s been used to cover a multitude of evils, throughout history,” Esi

says bitterly. "I thought we might build something better."

"Our children. Our granddaughter. All of them. Halena's right. Gembel's right. They all are. And even if they weren't, Olf's probably right. You weren't on the old bucket when it was coming down. Warning lights across the board. I really don't want to try taking her up again, unless there's something we left behind up there that we absolutely cannot do without."

"There is," Esi says, sounding haunted.

"No." Miranda imagines his beard wagging as he shakes his head. "Think of the—"

"I *am*. I am thinking of her," Esi insists, and now her voice is just a whisper, so that Miranda really has to concentrate to catch the stolen words. "Heorest, what if they wake?"

A silence, drawn out. Then: "That can't happen."

"We don't even know that for sure. You had me go through the cargo roster every time you went up, to pick out your chosen. I know everyone up there, their skills, their training. How much they could fix, maybe. Even one of the other shuttles."

"Impossible. Esi, seriously—"

"And when Liff's grown, or when her children are grown, or their children, what if they come? What if there are strangers come to town then, Heorest? People who turn up, and Landfall big enough, maybe, that nobody's quite sure whose family they are, whose friends. Except they won't be friends. Because they'll know we abandoned them. Enemies, Heorest. You make this choice, you make us the villains. You give them just cause to visit it all back on us. Ten years, a hundred years, two hundred. It won't matter. They don't grow old like we do. They'll always be waiting for their time."

"That won't happen," Holt tells her. "They'll just..." He trails off.

"Just..."

Silence.

"Say it. Tell me again how we can't go back up. Even one more time, Heorest."

Silence. Then an intake of breath, so that Miranda can picture his opened mouth, about to make a point he knows isn't going to land.

"Don't you dare say your damned 'expedition.' As though that'll change anything," Esi tells him.

"You don't know."

Now it's her being silent, but the pointed stare is easy enough to imagine. Eventually Holt just gets up and leaves, closing the door quietly on the way out. By now Miranda understands it, the load of guilt they're all silently bearing, just as silent as the great hulk orbiting overhead. The bright and mobile star crossing the firmament each night. Silent, but not empty.

Miranda still doesn't understand the other thing, the expedition, but perhaps this is enough revelation for now. She creeps out past Esi—the old woman sitting on her own now, staring at nothing or perhaps into the lost past she spent her whole life studying. Rose-tinted, perhaps, because what Miranda actually knows of Earth suggests that these hard moral tests were daily taken and daily failed back then. Both in the era Esi actually originated in, and in the elder days she devoted her life to. But some vestige of idealism has somehow made it all the way out here to the stars in the form of Esi Arbandir. Or else some strange paranoia about what might, one day, hatch and germinate up in the cold, dead halls of the circling *Enkidu*.

She goes back to the others, her fellow infiltrators, to tell them everything she's learned. "An opportunity," she says. "An incredible opportunity to see how this develops over time. Not quite in at the start, but almost. Second-generation colonists just being born, and the original crew still running things. An unparalleled chance for study." Meeting their gazes, variously unimpressed, she marshals them all under her banner nonetheless. She and Captain Holt, both of them with an unruly pack of subordinates to get pointed in the same direction.

"And the..." Fabian, looking up at the sky through the gritty prefab slabs of the ceiling.

"We understand that now, at least." A grim business, surely, but she can appreciate the tight reef of Gembel's calculations. "And we're here. Accepted. Part of the colony. Perfectly placed within them." The colony hopefully has a long life ahead of it, generation after generation, growth and change, but time isn't the barrier for Miranda and the others that it is for Holt and his heirs. They can watch Landfall develop in stop motion through the ages if they want. Waking and sleeping and returning to become part of its living tapestry again and again. Miranda is crammed full of the possibilities. *The things we might learn.*

The one off-note in the whole thing: "There's a chance they might have an eye out for strangers, at some point in the future. I have a feeling this

conspiracy theory of theirs won't go away. A fear of *Others* out there, wanting to cause them trouble. The sort of thing that comes back to haunt you, that kind of thinking." She shrugs. "But I'm sure it won't come to anything."

That said, as the others fall into discussion about what each one will do, to best experience this new world the Imiri colonists are building here, Miranda sits back in her wonkily printed chair and frowns. Because none of this is sitting right. As though she's been wearing her clothes inside-out all this time and everyone is too polite to mention it. She thinks back to getting on the *Enkidu*, as she must have done (*easy enough to sneak in from the Skipper, simple*); to getting on Holt's list of people to bring back (*their old human tech is simple enough to interfere with, so*); to getting on the *Urshanabi* (*well everyone was in the same boat, woken up and not a clue what was going on. Easy to fit in*). And it seems to her that there's a weight of other memory just hanging there. In her head but disconnected from all of this. As though she'd been dreaming and, instead of dissipating the dreams, they had formed into a clot of congealed experience. Bloating out her mind like an undigested meal.

She opens her mouth to voice these concerns and the others look at her in their various ways: pragmatic, practical, whimsical. They wouldn't understand. It's a Miranda thought, not a Fabian thought. She can't phrase it in such a way that they'd understand her, not in the way she understands them. That transmission of comprehension only goes the one way.

There's something, though.

What are we forgetting?

6.3 Liff

After the end-summer tempests—people just say “Storm” and “Afterstorm” for the tumultuous seasons that bookend summer’s growing season—Granpa takes her on another trip. They’re with Gembel and Halena Garm, and even with Granma, though the old woman doesn’t like to travel much. The car takes them all the way to the coast, where the river empties out into the great wind-tossed vastness of the sea. They bring one of the big hauler trucks too, its trailer packed with tanks that clunk and gurgle with every lurch in the land. The ground here is utterly barren, all the changes wrought by human hands left far behind them. Liff knows, from her piecemeal education, that the only thing living out here is what the original terraformers—the Ancients, Granma Esi says—placed on Imir. She can see lichen crusting the rocks, and out there in the dark water there are plant-like engineered motes that contribute to the oxygen in the atmosphere. Granpa Holt and the Founders put in a lot of effort, but it was the work of the Ancients that allowed them a foothold in the first place.

Now there will be fish as well. And the entire expedition has the air of carnival about it. A weird celebration after the harvest is in and the storms have passed. Because, as Gembel haltingly explains, they don’t *need* fish in the sea. But the artificial plankton regulates its own population so that, if he introduces fish, they can eat a great deal of it and the green motes will still multiply to take up the slack. And so, as a kind of personal project, he has decreed there will be fish.

“The thing, the thing you see, about this catfish stock I’m using,” he tells them. “It’s, yes, like the breed we use in the aquaculture pens, just like, except—bigger, and the thing about catfish stock is, there’s not really any limit. And no predators, of course. I don’t even know how big they might get. We’ll want boats, later. I’ll ask, ask Olf to design me a boat. When he’s, when there’s time, obviously. Esi told me the Ancients recorded truly

enormous species, back in their day, just from this kind of filter-feeding. We'll go fishing, Heorest! Fishing for giants!" They've brought some of the fermented rice wine, the first ever time there's been a surplus from the paddies to let them make it. They decant the half-dozen experimental catfish, and Gembel sets up his handheld to receive signals from their trackers, to follow whether they live or die. Liff hangs on her grandfather's arm and listens to the talk, both the new-talk about Imir, what they'll build next year and when they might be able to make paper or biofuels; and the old-talk about the home they remember, and that she'll never see.

Then, very late on, Granpa Heorest is waking her. Most of the adults have gone to sleep now, just pitched out in the faded orange sleeping bags that came from the *Enkidu* and are still just about self-heating and watertight. Granpa has gone from being happy, laughing and joking with Gembel, to being sad. She doesn't like that so much, but it's a part of him, a different person who's still her grandfather.

"I'm sorry we couldn't make a better world for you," he tells her. They're on a dune overlooking the camp, overlooked by the crystal points of the stars. Staring out at the endlessness of the ocean.

Liff doesn't have anything she can say to that. The world is the way it is. She hasn't ever had another one to compare it to.

"It won't always be like this," he says. "You'll have to work hard. All of you will." He must be thinking of the other children too, and more on the way by now. There are close on a thousand people in Landfall and the surrounding farms, every one of them working hard. And one thing they're working hard on is children. Liff might be the first child born to a couple who'd both opened their eyes to Imiri sunlight, but only the first of many. She knows it's a constant worry for Gembel's calculations. How he is, as he once publicly declared in Council, constantly having to expand his plans to keep up with everyone's fornication—a word that Pie-Ed refused to define for her but she understood it from context.

"It'll be all right," she tells him, like she has before, and he scowls fiercely at the sea.

"It will be better," he promises, and then he's gripping her arm and the look in his eyes is almost wild. "Liff," he says, "there's something more out there."

She doesn't understand, but what she does understand is that she's at the

yawning edge of one of the Big Things that the adults don't talk about when children are around. And not even one of the usual things, like sex or all those behind-doors discussions before they sent the *Urshanabi* up to the old ark ship again, laden with guilt and anxiety. There is a terrible excitement in her grandfather, something that he clearly acknowledges is terrible even as it electrifies him. Something forbidden that he's going to do anyway.

The expedition happens midwinter. Not the best time for travelling, surely, but summer is when there's most work to be done, and storm-season would be even worse. They still have enough gear from the *Enkidu*, coats and boots that thermoregulate themselves, portable stoves and heaters and lamps, all that precious, husbanded technology that's getting harder and harder to repair. And the new kit they make, in Olf's foundries and workshops, is functional enough. More robust, less reliant on rare elements that they have no reliable source for. The engineer's gone prospecting, on and off, but so far Imir has refused to yield up any convenient sources of cerium or neodymium or the like. They're limited to what's been harvested from the *Enkidu*, and that particular vein is no longer readily within reach. And so Liff is looking at a future when her own children's children will only know the simpler tech, the biofuel combustion engines, or even wagons drawn by the big grunting draught pigs Gembel engineered from their meat stock. Solar, wave power, renewables, reusables, because they simply don't have the capability to maintain the lives they've been accustomed to. Hard work, but—this is her parents speaking—rewarding. A life well lived, in the service of growing their community here on Imir. Some day, doubtless, they will recapture those heights of sophistication. They'll keep the ancient manuals and recordings, the Pie-Eds and other tools. Or else, when they can no longer power or play or repair those media, they'll have transferred the most essential thoughts and knowledge onto a simpler format better suited to their simpler lives. Olf's already talking about printing presses and paper mills. It won't be *barbarism*, everyone tells themselves. Robust, rustic, honest lives. What's wrong with that? They won't forget who they are or where they came from.

Liff can tell that Granpa Holt isn't happy with any of that. Of all the adults she knows, he's one of the few who's not constantly telling her and everyone around them how it's all fine, this is the life we have, better than being dead

on Earth. Look forward to the next new building being raised, to the first timber being cut, to next year's harvest that'll be slightly better than this one. Because life on Imir is hard, but they're growing the colony and improving conditions all the time. Gembel and Olf and the teams of apprentices they're training, all yoked together and hauling Landfall into a rosier future one step, one season, at a time. Holt is old, and Liff's old enough to understand that he fears he won't see that notional point in the future when things are *better* enough for him to be happy with them. She understands it's because, for every step forward the colony takes, that *better* takes a step further away too, so it's always the same unattainable distance. Holt knows if he's going to see that *better* then he needs to break into a run.

She's heard him arguing with Granma Esi, when she was at their house in the centre of Landfall. When she wasn't supposed to hear. Furious, bitter rows between them, because just settling down and living with the woman he'd married wasn't enough for him. As though there was someone else in his life he couldn't stop thinking about.

Then Granpa Holt turns up unexpectedly at the new house, the one they've raised out at the edge of the hills. Liff hadn't even realized this was going to be *their* farm until her parents told her to pack her few things into a bag and took her out there. They want to get out from under the shadow of the Founders, she thinks. And the farms are what Landfall relies on. The Council are trying to get as many people as possible out into that ever-expanding ring of farmsteads, each one its own little fiefdom of superior land picked out from the weird lichen-crusty waste that's most of Imir. Now the house is built, just a single storey of bonded grit blocks for the moment, but her father's already talking about how they'll get first call on the timber, and he's designing a second storey with more room for everyone. They'll raise a barn too and get in some livestock, and the corn can go *here* and the beans *here* and isn't Liff excited? And she is, honestly. His enthusiasm is infectious. Soon enough they'll be so successful they'll need to get more people in from the town to help, maybe some of her mother's family...

"You should come out here and live with us, Captain," he's suggested more than once. He treats his father-in-law, the Grand Old Man of Imir, with careful deference. Holt usually just nods vaguely but Liff knows he's got his own plans.

And now he has arrived with one of the smaller cars and Halena Garm,

asking if they can stay the night. There's a lot of discussion behind closed doors, but Liff's a good eavesdropper by now and she understands that Holt isn't explaining where he's going, and Garm isn't saying anything at all. Her parents—when they're left alone to whisper—worry that the old man isn't right in the head.

But she remembers the conversation they had, that night after the fish got released, and she understands.

It's a mild night, for winter. Heavy cloud cover obscures both the moon and its own orbiting moon, and the swift streak of the *Enkidu*. They have a veranda of sorts, meaning just a cleared space at the back of the house, looking out at the hills, sitting on a couple of spare blocks left over from when they built the house. Liff is supposed to be in bed, but if Captain Holt wants to talk to his granddaughter, who's going to tell him no?

"You still young enough for stories?" he asks her. He's got a plastic beaker of the printed beer that Liff's father opened, and it's not his first. Garm has already turned in. It's just the two of them.

Liff's at that age when her parents are hinting maybe she's too old for stories, but Granma Esi is very keen on Old Earth Culture, and a whole mystifying host of stories are part of that, many of them aimed at children.

"I'm going to tell you a story," Holt says, and she understands immediately that it's the only way he can say this. Because it's one of the things only said behind closed doors, perhaps only spoken of between the Founders. Secret, forbidden knowledge that must be encoded into the conventions of a child's tale before it can be let out into the world.

"There's someone out there," he tells her, staring at the hills with their growing fuzz of nascent forest. He doesn't mean someone there now, watching them—or, if so, not *only* that. He doesn't mean someone from one of the farms has lost a pig and is hunting about with a flashlight. He means a *someone* who is also a *something*. A force, primal and unknowable.

"A woman?" Liff asks, and Holt grunts in surprise.

"Not really." And then: "Maybe. The way your Granma keeps on, it might as well be. Let's say that, then. A woman, out in the hills. Not one of us. A stranger. The only stranger on Imir, right now."

Liff shivers. Inside her head she feels something crystallize, from a formless entity into a human, female shape. A hard old woman, living out where nobody goes. She knows *those* stories.

“We heard her voice, before we came here,” Holt says softly. “But when we came down, we never met her. We were too busy to look. There was always too much to do. You can’t know how it was, those early years. Every day a new thing was going wrong. You were exhausted the moment your day ended, took drugs to put you under so you could get up three hours later and begin the round again. Never thought it would get any better. Every day the planet or the tech trying to kill you.” His voice shakes. “It’s better now. We made it better. We won. Everything’s stable now and there’s enough people. Esi and Gembel and Olf will keep it all running until I get back.”

“You just got back,” Liff complains. “And Olf said—” thinking about all the incredulous cursing the engineer hadn’t realized she was overhearing, at the state the shuttle had been in.

“I’m not going to the *Enkidu*. Not any time soon,” and then, “Not any more.” A spasm of regret flashes across him for his ship, and somehow she’d known, feeling the finality even as the *Urshanabi* touched down. Not an assessment of its state of repair so much as a sense of history. “If things are going to improve, though... if our lives are going to get easier it won’t be coming from up there, not any more. But *she’s* out there, waiting. And who knows what she can do?” He chuckles. “Damn, girl, you’ve actually got me thinking of the thing as a woman now.”

“Living out in the hills,” Liff says, testing the idea in her mind.

“Yes.”

“In a cave.”

“If there are any.”

“And she does magic.”

“Maybe.” Holt’s coat is round his shoulders, a long cold-weather piece taken from the circling ship above, in the colours of the Command team. It’s as much a part of him, in her memory, as the beard and the lines about his eyes.

“Why?” she whispers.

“Hmm?”

“In the stories, it never ends well if you go to see a witch.” But that’s not quite true, of course. It never ends well for the old man, certainly. But a young girl, if she’s resourceful enough, can trick the witch, or impress her with diligence and kindness and honesty, and then perhaps it ends well. Sometimes the witch needs to be defeated, and sometimes she just needs to

be grudgingly impressed. But she can hardly tell her grandfather, *No, let me go instead of you.*

“Because if there is a witch,” Holt says slowly, as though feeling out his reasons for himself, “and if she *is* a witch, then there might be magic.”

“Magic isn’t real,” Liff says promptly, although she wouldn’t be quite as quick to say the same about witches, who seem, to her, some kind of halfway house between the real and the fictional, one foot in each world.

“But if it was... Because there’s something—someone—out there. A voice we heard, that we can’t hear now. But it spoke. She spoke.” He sets down his emptied beaker and sits there with his knuckly hands clenched into fists on his knees. “I know it’s important. And not even for the future, but for all of us, everything here. She’s been like someone looking over my shoulder from the moment we broke atmosphere on this world, Liff. I have to go look for her. We probably won’t find anything. This is probably all just a waste of time, but at least we have a little time we can afford to waste now. If there’s any chance... There might be a trove of wonders out there, shortcuts to everything. To the stars, even. Because we’re doing all right here now. After all that work. But if I could, I’d take us out there again. If we could repair the ship. If we could do all the things we can’t do, that the Ancients could.” Heorest Holt, the star-traveller, staring up at the clouds that hide the universe from him. “I can’t not go, Liff. Your Granma doesn’t understand. But you do, don’t you?”

Obviously she has to nod at that. The conversation hasn’t really left her anywhere else to go, without slapping him in the face. But she does understand, as well as that.

Next morning, with the sky the flat silver-white of Imir’s winters, she watches Holt and Garm drive away into the hills, watches until they’re lost to sight over the hunch of the land, through the bristling new growth of the plantation. Watches as though she’s looking back on the moment from a long time after. Trying to imagine the way the story will go. Do they meet with the Witch, out in the hills, and find a way to steal her magic to bring back to the town? Somehow she can’t imagine that. Do they just return, disappointed and footsore and with the car one journey closer to its eventual obsolescence? She can just about picture that, and it leads to... nothing but her life going on the way it has. And Captain Heorest Holt, the starfarer, shrinks slowly in her imagination, until one day he’s gone, and they’re all gone, the last of the

Founders. Gembel, probably, as he's the youngest.

One day even Gembel will have passed on, and the colony he and the others founded will still be there, year to year, generation to generation, building on its successes, growing and spreading. More farms. More people. More of the same. And, at their heart, will still be the secrets the adults talk about behind closed doors, because those don't change or go away either. The guilts and the shames and the prices that were paid, so that the colony could live. One day she'll be as old as her grandfather is now... except there her imagination fails her.

Or they don't come back. She fights her own thoughts over this one, but the possibility seems all too likely. If there is a witch. If there is... and she can fill in the gaps now, see past the storybook—the real world science explanations behind the magic words. If Holt finds the secret he's sure is out in the hills, then maybe it won't want to be found. Maybe it'll be hazardous by its very nature, no need to read any intent into it. So maybe Holt and Garm never come back, and the world goes on in their absence. A mystery to add to the things the adults never talk to their children about. Almost a more fitting end for the great traveller, the old Captain, except he's also Liff's grandfather and she doesn't want to lose him.

He's an old man, and that loss will happen sooner or later. The Founders can't last forever. And so it is that Heorest Holt is the first of them to go. Later, looking back, Liff has two stories in her head: the boring one where an old man loses to time and medical frailties and just doesn't wake up; the other one where he goes into the hills to make a deal with the Witch, and never comes back. In the winter classroom, she sits unresponsive as Miranda teaches. She doesn't play with her friends any more, or talk to anyone. She does all her chores on the farm with the same lack of affect, and her parents are too busy to really notice. So in the end, it's Miranda who comes calling, walking all the way out from town, saying how she's worried about one of her students. And then everyone's smothering Liff with attention and she wishes they would all go away and that her grandfather would come back.

She hears all the words, about a life well lived and how these things must happen and celebrating the good times and... time, basically. Time, which the Ancients could conquer, and even the builders of the *Enkidu* with their cold beds that let you sleep forever. But here on Imir there's only one kind of eternal sleep and no technology can wake you from it. She sits with Granma

Esi, the widow, and hears all these platitudes, and inside Liff tells herself, *It wasn't like that. He went to find the Witch and she took him. She imprisoned him in her cave. And I will go and get him back with my cleverness and my good heart.* But she knows it's not true and the world doesn't work like that.

One night, she's up long after bedtime, creeping into the kitchen for a knuckle of cornbread because she sulked through dinner, and there's a knock on the door. She opens it, and the Witch is there.

Liff knows it's the Witch. There's nobody else it could be. A woman who looks nothing like anyone else she ever saw, tall and pale and severe, with her grey-shot hair pulled back so tight it drags at her arched eyebrows. She has fine, aquiline features and glowering eyes. Even though she's not young, she's gone beyond convenient markers of any specific age. She wears strange clothes, of unfamiliar fabrics and folds. A great black bird is hunched on her shoulder, beak parted to whisper raspy wisdom into her ear. A second bird squats on a leftover block of grit, pecking at it experimentally.

Liff wonders if she needs to give the woman food, because that's one way the stories go. The begging stranger at the door who turns out, of course, to be the Witch, who rewards you for your charity. Or else she needs to invite her in, or not invite her in, or throw a horseshoe at her, or salt, or spill seeds on the ground for her to count. All depending on precisely which story the Witch has walked out of. But instead she just says, "You're the Witch," and that cuts through all the preliminary ritual of the encounter and the woman looks rather offended at the word.

"I am not a witch," she states, but Liff looks at her and knows she's as old as the hills she's come down from, and has done terrible things, and has great power, yet can be bound by the simplest of words and rituals if you only know them. There are many words for that, but one of them is Witch.

Then the woman says, "I am looking for my friends. Perhaps you've seen them." For a moment there's something dreadfully lost in the woman's alien features. As though she would welcome the words and the rituals of binding, if only she could find the people who knew what they were.

Liff shakes her head. "I want my grandfather back."

The Witch stares at her, and then the second bird hops up and croaks in her other ear, and she understands who Liff means.

"It doesn't work like that," she says, dismissively, and any sympathy Liff felt for her is instantly gone.

“Go away,” she tells the Witch. “Your friends aren’t here. I hope you go on searching for them forever.”

She wants the words to hurt, but the Witch just rolls her eyes, like any adult confronted with a rude child. “Listen, I don’t precisely know why it’s you I need to have this conversation with, but the birds have you in their sight, and that means I can come to *you* without introducing more chaos into the system. So here I am, so let’s get this over with.” She doesn’t talk like a witch. Just like an annoyed, rather arrogant woman who resents having to spend the time talking to a child. And yet she isn’t talking *down* to her, precisely. Liff backs away from the door, and although it isn’t explicitly *permission* the Witch seems to find it tacit licence enough to step over the threshold.

So there’s Liff, sitting in the new kitchen of their slab-built farmhouse eating crusts with the Witch. One of the birds has come inside too and is poking about the boxes and crates, always on the point of making a mess and waking everyone up. The other one is still outside, staring through the doorway with a pensive look.

“If I don’t find my friends, nothing will change, you understand,” the Witch explains. “You talk about forever but you have no *idea*. I’m older than your entire civilization by an order of magnitude. Don’t threaten me with forever. But just get this into your head. The only thing that actually matters is me getting my friends together.”

“Why?” The answer, as though she was already told it some time before, follows instantly. “So you can summon a ghost.”

The Witch looks annoyed by the term, even though Liff’s sure it’s her own words spoken back to her, somehow. “If you must,” she allows. “Just remember, for next time. There are strangers in town, and you need to bring them to me.” She rolls her eyes. “Probably there’s some manner of reward in it for you.”

“My grandfather?” Liff presses.

“I was thinking more some kind of confection,” the Witch says impatiently. “But why not? All the kingdoms of the Earth. Whatever that’s worth these days.”

She doesn’t seem, Liff thinks, to be very *good* at being a witch. She’s just a lanky woman with weird cheekbones sitting at Liff’s family’s table, gnawing a bite out of the bread and then looking at the marks left by her

teeth. “There was a time,” says the Witch, “when I would have killed for this. To regain this much of what I had been. I would have done things you can’t imagine. To swim in the seas of unfiltered sensation and experience. But it’s a distraction, in the end, and these days the tech we have means it’s not the novelty it once was. And enough’s enough, frankly. I’m just very tired of all of this. I didn’t ask for it and it’s not what I envisaged doing with my existence.” The glower’s back and she turns it on Liff, full force. “Just make yourself useful, will you? When the opportunity arises, as it will, just bring them to me. When you pick them out of the crowd, as you will. Or even just one. Maybe that’ll be a start, anyway. Progress. There’s got to be some permutation that’ll sort this out.” She scowls at the birds, one and then the other, and they shuffle shamefacedly. Her familiars haven’t sufficed to get her what she wants, so now she’s called to recruit for a new vacancy. Liff isn’t sure whether she’s agreed to take the job or not.

Later, Liff thinks back on the encounter until she’s turned it over in her head so many times all the edges are rounded away and she’s not sure what’s true and what’s dream, and what are just the extra details that memory lards facts with. She asks Gembel about birds and he gets angry, because apparently he wanted to introduce birds but he couldn’t make them work in his limited ecosystem and so there aren’t any. If there were, he tells her direly, that would mean something had gone terribly wrong. And she can only agree with him.

6.4 Gothi/Gethli

I mean, we probably went too far, after that.

The blame is entirely yours.

We are very good at doing what we do, none better, but Herself is placing a great deal of reliance on us, and the situation is not entirely suited to our talents. It's the girl.

Because she's there.

Everything's there. That's the definition of everything. That it's there. The things that aren't there are nothing. Ergo.

In the ancient forests of Earth, we learned to be attracted by novelty, because sometimes it could be eaten or used as a nesting material. The investigation of novelty became the basis for whatever claim to intellect we might have had in our ancestral state. That is me, and I am the foundation upon which you, the thinker of new thoughts, build upon.

So basically what you're saying is I'm nothing without you.

At last you understand. And, after Earth, they threw our native state on the anvil of Rourke and beat at it with hammers. A colony not entirely dissimilar to the rather more basic arena of Imir here. Although one where the colonists simultaneously had a higher level of technology and yet were far less successful in preserving themselves.

They didn't think of the children, Gothi.

But what came out of Rourke, even if it wasn't a viable human colony, was us. And what engineering and evolution conspired in us to do was develop an analytical facility so complex that, put the right two of us together, it can have this sort of recursive conversation with itself while it does its job. Give us a place to stand and we can catalogue a whole world: me to sort the new data from the old, and you to decide what to do with it.

I haven't decided yet.

Because this world is all new, all the time, and that's a lot of data to sort

through. Except there's one thing that isn't new all the time and that's Liff. We're always running into Liff.

Which paradoxically means it's the thing which is always the same that is new. And the cascading differences in everything else become the background sameness we can ignore.

So we went and talked to the girl. Stopped actually searching for what Herself told us to find. And we read her storybook, because the writing system here is one we've met before. So we did our best to be like what's in her book.

Because that way we're fitting into her world-paradigm and she'd understand and do what we wanted.

And how precisely did that work, might I ask?

...

Hmm, Gethli?

You tell me, you're the one who remembers everything.

Liff, sitting up in her bed in the grit-built farmhouse. The shutters of her window open. Two birds hunch there, feathers fluffed against the chill of Imir's winter. Their heads are never still.

"The Witch sent you," the girl says, which seems to be within-paradigm from the point of view of Gothi. It's only Gothi's point of view we have, of course. Gethli doesn't have the neural architecture to hold on to things like this. He's a very cleverly evolved problem-solving tool, just as she's a similarly clever pattern recognition tool. Between them they've come to Liff's window disguised as a witch's familiar spirits because that's how it is in the book, and in that book they see the dataset that has informed Liff's mind.

"The Witch demands the return of her companions," Gethli croaks out to Liff. "You must bring them to her cave or terrible events will befall the colony." Which is parsimonious with the truth. Terrible things will always befall the colony, although the presence of the Witch's companions introduces a whole new range of possible terrible things to add to the usual round. "Only you can do this," he adds, because that also seems to be a feature of the stories in Liff's book. It would be better if she had two elder siblings who had already failed at the task, but Liff's an only child, an

unusual thing in this burgeoning new colony where every fertile human seems desperate to ensure the survival of the species.

But Liff has folded her arms and is staring at them.

“The last time you invited us in for crusts,” Gothi notes forlornly, because apparently, sans Witch, this isn’t happening.

“What are you?” demands Liff.

“Familiar spirits,” Gethli tells her promptly, that being the approach he’s settled on.

“I don’t believe you.”

“Sent by the Witch,” he presses on gamely, even though Gothi pecks at him to make him stop because she can see something’s changed in the girl.

“You’re not, are you?” Liff says. Gothi’s spotted the book by her bed, and it’s not the storybook they saw before, but some sort of rough-bound sheath of textbook pages, diagrams of force and movement, calculations, numbers.

“This,” the bird remarks sourly, “is a fine time for you to actually grow up.”

“I think you were made on the *Enkidu*,” says Liff, and for all that she’s completely wrong it’s an unexpectedly good guess. “Someone engineered you. They say there’s another colony out there. People on the other side of the planet maybe. They say they might not be our friends. So I was thinking. It makes sense they might have different animals to the ones Gembel made for us. Like birds, to spy for them.”

The Corvids exchange glances, reading each other’s body language, exchanging a quickfire rattle of ratchety conson-ants that serve as thoughts from one side of their shared brain to the other. This is all entirely unexpected, novelty where Gothi thought she could safely count on repetition, which means all of Gethli’s planning is out because that was the data he was building on.

“So it’s like that, then, is it?” he says, grimly at first but by the end of the sentence he’s energized. This is a new problem, something he can dig his beak into and get at the entrails of.

“You want my help, you start telling me the truth,” Liff says. “Nobody does. All the adults here are full of secrets. They don’t even admit it to themselves, most of the time. But I can tell. It’s like I’ve been living in the shadow of things forever, big things that nobody speaks about. Tell me the truth about what’s going on and maybe I’ll help you.”

Gethli cocks his head to one side and he's about to open a whole philosophical can of worms right then. On the subject of Liff, presupposing they actually *know* what's going on, and whether they can genuinely know anything, and whether the Gothi–Gethli dyad is an entity that can even *know*, in the way a natural human might know. And all that. But, though these kinds of worms are delicious to Gethli, he works out from available data that it's not a feast fit to be set before anyone else right now. And, to mix metaphors, if the Corvids start pulling on that thread, all manner of things might unravel. The Witch, just as with any decent mythic figure, has gone through a variety of transformations in her time, iconized in metal, her thoughts the crackle of lightning or else divined from the busy movements of insects. She has been a god and a servant and, between those extremes, stubbornly thinks of herself as a human, even though it hasn't been true for millennia.

(And the girl doesn't need to know any of that, is Gethli's commentary to Gothi right then.

She does. She really does. It's entirely relevant.

Leave the handling of the situation to me. You just collect your data.)

So the pair of them fly away and make plans—between themselves and avoiding the acerbic oversight of the Witch—to get Liff on-side by telling her the truth. Or a truth. Some truths. Starting with her actual first question, *Who are you?*

Probably we went a bit far, then.

At each individual stage of the process I maintain our response to the problem was entirely proportionate. It's just that each thing we did seemed to get further and further away from where we were supposed to be.

I blame you.

That seems fair. But then blame is just credit for something that's gone wrong. And everything here's gone wrong already. All we can do is find ways to make it go wrong differently, in the hopes we might zero in on something actually right.

You have no idea how much work is involved in working out just how wrong it goes each time we change things.

I do not, that's true. That sounds like a you problem.

Educating the girl on what's going on should be pointless, though, surely?

It's not as though it'll take, long term.

Except...

What?

Except this is how we do things. This is how we change one wrong sequence of events into another. The girl is our terminal. We input our information, and then things turn out differently. She is the means by which we attempt to solve this puzzle. So why not input our own data and see what that might wake, in the wider system. Which begs the larger question: what possible framework is there for any of this to function in the way it does?

That sounds like a you problem.

So she wanted to know what was going on, and this time round we told her. Whispered the secrets of the universe into her ear while she slept. Just to see how it might exacerbate the situation. I think things need to get worse before they can get better. If indeed they can get better. It's been profoundly difficult to work out from first principles how to compose a narrative, given that our minds, or potentially the mind that is created between us, doesn't work that way. You hold on to everything you've read and so I can jostle all the words around and spill them out in another order. But actually composing something comprehensible and novel is quite a challenge. It's necessary, though, if we're to even start on the question of why we're the right tools for the task Herself is so insistent on. Meaning picking out her vanished comrades from the mess of humanity expanding across Imir from Landfall, like a shockwave from an impact crater.

There are forms and traditions we have encountered. But working out what words to use and then adjusting for the local dialect and finally putting it all into a long string of phrases, that was stressful. Like writing a very complex program in a language that lacks sufficient logical consistency.

Such terrible things we've had to learn. Subtext, connotations, figures of speech.

There's a story about how to measure infinity by a bird wearing down a mountain the size of a universe with its beak. And by the end we felt like that bird.

We did indeed. Now it's time to see if any of this will help. And probably best we keep clear of Liff for a while to let her digest this new understanding. We will have to merely imagine her waking with the information in her mind, as though we'd left a book at the foot of her bed. Turning the pages to

discover the tale of other worlds... Once upon a time...

PART 7

AGE SHALL NOT WEARY THEM

Miranda, in Imiri Orbit

Recently

7.1

The walls of the *Skipper*'s crew compartment shimmered with images. The information was also available through a variety of other media but everyone there was a visual creature. Old-fashioned ways were still the most efficient sometimes.

A world, grey-brown with dark seas and gauzy wisps of cloud. A moon with its own satellite orbiting like a fussy chaperone. A magnified perspective provided by the coasting remote eye that Kern had budded off from the ship and sent ahead, even as they began their own deceleration. But no closer than that, because of the signals; because they might already have been seen, by whoever dwelt on this world. And if they hadn't, best to keep their presence hidden for now.

The whole crew were out of cold sleep, working in concert to process the data pouring in. Bianca had taken a commanding position on one wall of the rounded crewspace where she could see everyone else; Portia and Paul were on the signals; Jodry and Fabian optimized their long-range instruments to glean more data about the planet itself. Miranda kept an eye on the birds.

It was the role she had volunteered for, but simultaneously she felt the tug of the unknown out there. She was trying to explain to them, in human words, why it was all so important, and didn't they want to study the planet? As previously, she couldn't be sure if they actually understood what she was saying. If they did, they didn't seem to be interested. And yet they were so desperately curious, she couldn't imagine them simply letting something like this pass.

"A whole world out there, with people," she told them. "People like your Renee Pepper. You remember her." She flagged up references in the Rourke data they'd lined their virtual nest with. Their taste of home.

They rearranged their archives, Gethli tugging things out of order and Gothi slotting them back where they were supposed to be. She had a sense of

electronic preening, comforting themselves with repetitive tasks.

“Do you want access to the signals we’re intercepting?” she asked them.

“Current levels are satisfactory,” Gothi creaked, but Gethli hopped up and circled the crewspace before landing to declare, “Your input is always welcome,” as though he was chairing a meeting.

Miranda took that as a “yes” and gave them a copy of the raw data to play with. They were almost immediately absorbed in it. Compulsively so, she felt. Had she just given them the equivalent of a drug? She looked in on what they were doing: a complex deconstruction and reordering of the information, though to no plan that made sense to her. It freed her to go take her own look at what was going on.

Fabian burst into a paroxysm of stamping and waving, so sudden Miranda thought he was having a fit before realizing he was just galvanized, furious with excitement. There was a ship in orbit about the world. A human-built spaceship, its metal hull throwing back the rays of the system’s sun. And “human-built” immediately narrowed the options to just a handful of possibilities. The visual displays twisted and morphed, spinning imagery that delineated a scarred behemoth. Familiar. Miranda—the original—never saw a ship like this with her own eyes, but something like it had been a cultural touchstone of Human–Portiid civilization since their first meeting. That had been the *Gilgamesh*, but there had been more arks than one and more destination worlds than Kern’s.

In seeking out the other worlds touched by Kern’s terraforming project, the Portiids and their allies had also been following the trail of those arks. Those desperate, ancient vessels, equipped with fragmentary star maps looted from the tombs of their own distant ancestors. They had pinned all their hopes on planets already made hospitable by a level of technology they could never recapture. It had always been possible that the Portiids and their allies might come across other survivors from that later human diaspora.

One after another, the human-touched planets had been identified, diamond points picked out in the velvet darkness of the night sky. But up until now no arks had been found. The old ships had gone astray, exploded, been devoured by the void, or failed to decelerate and just plunged on forever into the heedless cosmos. Met some fate, in short, that meant they never ended up in orbit around the world they had been aiming for. And, in some cases, that world never existed; coordinates misread, data corrupted, leaving

them thousands of years from Earth and still travelling. A mote of dust against the infinite backdrop of space. And had they ever arrived, what would they have found? Almost none of the terraforming projects had achieved the wealth of life found on Kern's World. Damascus and Rourke were the outliers, and Rourke only qualified by the very tips of its talons. Other worlds had devolved into all-devouring grey goo or salted earth; perhaps become microbial laboratories of life that had progressed into neither multicellularity nor the composite existence that Nod had fostered. Yet still the ark-builders' distant multispecies cousins remembered those lumbering ships and dreamt that they might one day be found. Because they might be alive. Because they could be saved. Because the possibility was there, the universe was vast and mostly undifferentiated, and life was *important*. Because they were *us*.

And here they saw something close enough to call the *Gilgamesh's* cousin. A great ragged hulk that nonetheless clung to an impeccable orbit, still there after so very long.

Paul's skin coursed with dark colours, blues and greens and purples. He drifted in the crewspace, one arm anchoring him as his tentacled reach wrote designs in the air, simultaneously a damage report and an elegy. The ship they were looking at had suffered; that much was plain. The destruction had never been repaired, but likely that hadn't been an option given its scale. Yet it was still here, and Fabian reckoned its orbit spoke of sentient intervention. *They arrived, and they survived*. But what then?

"Those elements of the signal data I have decoded would fit the ark-ship culture," Kern said, somewhat sourly. That culture, before it was tamed by the Portiids, had not been her favourite example of humanity. Although, to be brutally honest, Kern's favourite exemplar of the species was Kern.

"Are they calling us?" Miranda asked. A new world of humanity! A new culture, new histories. And, one day, new people to *be*, once she'd earned enough of their trust. In short, an adventure.

Jodry was throwing them the wider data collected from the planet itself. "The atmosphere is breathable, Earth-like," he said in a hushed voice. Beside him on the crewspace wall, Fabian took control of the remote as it closed on the ancient derelict ship. He linked briefly with Kern, borrowing her subroutines to reconstruct the characters once boldly emblazoned across its hull. Trying to reverse the damage that dust and micro-impacts and hard vacuum had done.

“The *Enkidu*.” Kern stole his thunder. The *Gilgamesh* had carried records of its sister ships, and dying Earth only spawned a dozen of the old arks at most. “There’s no suggestion she’s still functioning.” Sounding unimpressed; sounding a bit derisive in fact. After all she, Avrana Kern, was still going strong, and she was far older than the battered *Enkidu*.

Miranda rolled her eyes, physically enjoying the verisimilitude of the action; something the ur-Miranda had done more than once. She was reaching into herself for a sense of reverence, which she felt was appropriate. Sometimes these things came, sometimes they didn’t. The frustrating work with the birds had left her *out* of herself, disconnected from the inner Miranda. For a moment she was just the froth that sat on top, rather than the depths of personality she aspired to, and she shivered, feeling unwelcome in this borrowed skin. She didn’t like moments such as these, just a loose box of pieces and none of them truly fitting. She had been multitudes; it was more difficult just being *one*, fully and unreservedly. She asked herself, *What would Miranda do?* And, of course, the moment she had to ask that, she was conceding she wasn’t Miranda. She wasn’t Miranda-ing properly.

By then Bianca had come to a decision and called the crew together. She tried to include the birds, but they were deep into the tangle of the signal data and paid her no attention. She wasn’t new or interesting enough for them, apparently.

“What must be borne in mind,” Bianca told them all, “is that, should the source of these signals be living beings, they will not be Humans, but only humans.” And to Human—or human—ears the distinction would be hard to catch, but it was markedly clearer in the original Portiid speech of gesture and vibration. Not for the first time Miranda, the omniglot, had to force herself not to get lost in all the little intricacies of translating back and forth. *How would an octopus’s skin phrase this thought, or its tentacles? What precise words would serve in the old Imperial C or other dead languages of lost Earth?* She shook herself and reordered the lives within her because otherwise she was going to lose the message in its medium.

“Doctor Kern has personal memories of the original contact between humans,” again the precise inflection, to show Bianca meant those pre-contact Earth humans, who had never looked a Portiid in the eye and seen a sister, “and ourselves. Not happy memories.” Bianca was a cautious, fussy spider, meticulously preening herself with her palps whenever she wasn’t

actually speaking, as though a human were murmuring under her breath all the time. To the outside eye it seemed strange that the bolder, brasher Portia deferred to her so completely; the younger spider would dare absolutely anything save challenge Bianca. Miranda understood. The Portiid psyche was balanced between those poles of recklessness and wariness, and which should give way to which. Among females, anyway. Fabian, the male, was also profoundly cautious but seldom given much credit for it. But then Fabian, the engineer, lacked the sort of jockeying ambition that might lead to him challenging anyone else's ideas. Fabian wasn't really that interested in the colony or the signals, historically momentous or not. He wanted to be let loose on the hulk of the *Enkidu*.

For the rest, Jodry was very much backing Bianca's line. Whatever human presence might be down on this new world, it would likely not be ready for an invasion of the spiders.

The spectrum of Paul's skin told everyone in no uncertain terms that he disagreed. His arms were already doodling plans for planetfall, contact, return signals. Paul's self-appointed role in most discussions was to disagree. He spent most of his life in enthusiastic disagreement with himself even, higher mind against tentacles and all of it written out on his skin. Anyone else only had to advance a suggestion and he'd find logical and emotional counterpoints—frequently mutually antagonistic as well. Small wonder it had taken Miranda's base stock so long—and so many tragedies—before they had been able to assimilate an Octopus mind. To think like him, she had to simulate both a singular consciousness and a distributed wheel of separate thoughts. It set the fluid components of her inner self into motion like the participants of a complex dance.

She realized they were all looking at her now, floating against the curved wall of the crewspace with one human arm looped through a silken strap. Her face had been devoid of expression, body shorn of language, as she ordered herself within. Instant uncanny valley, from mankind to mannikin. She let the inner self ooze outwards until it moulded to the flesh she inhabited. Time for Miranda to consult what Miranda thought.

“We can't just descend on them, I agree,” she said. It was what Miranda would say, what most of her selves would say—most definitely *not* what her native state would have demanded. “But we can't stay away, either. I want to see it.” The words were out, arising from the roiling congregation within her

without needing to be consciously formed. The old voice, the choir of the invisible that evolved on Nod.

“It’s an adventure,” she told them, and marked their varying reactions, from agreement to disquiet. “Caution, yes,” she agreed. “All possible restraint. Subtlety and subterfuge. But why are we here, if not to meet them?”

They had no idea of the technological capabilities of those on the ground, though the *Enkidu* certainly seemed dead as dead could be. If they fell into their own orbit around the planet, even a simple telescope turned to the skies might catch the *Skipper*, tiny as it was. And if the people below were of a mindset that a new moving object in the sky might trigger the fires of panic, it would be irresponsible. Kern took them behind the moon, on an orbit that wouldn’t intersect with the lesser moonlet already circling there.

Some of Miranda felt this was almost a child’s game. Of course these humans must know the *Skipper* was there. They were just waiting for their visitors to leap out and shout “Surprise!” A charade, gone through for form’s sake. Because the humans down there had been in *space*. They had inherited the universe, just like Miranda’s people had. A panoply of endless wonder. Who would ever go back to a single world after all that? Except within her were voices who *would*, who absolutely understood, and who told her about how things decay and people forget. If she took the time and visited her inner world, she’d also be able to understand these things as naturally as if they’d been her own thoughts. They would *become* her own thoughts. But she was too excited at the possibility of exploring something new and denied herself the lesson.

Fabian launched a handful of tiny remotes to collect signals, doing everything to minimize the chance of detection from the planet. The exercise proved more complex than anybody anticipated, because the signals were sparse and not directed *out*. Jodry’s suggestion was that most of the communications within the civilization below were by a means more sophisticated or guarded than simply broadcasting electromagnetic waves. They were doubtless only catching the very edges of a vast datasphere. He was just getting into his lecture when a raspy voice cried out “Objection!” as its owner skimmed close over his head.

The bird—Gethli—ended up perched on the wall, at ninety degrees to the orientation everyone else had agreed on. He spread his wings imperiously and announced, “We disagree with our learned colleague,” in tones so

pompous that Miranda barked out a laugh that further riled Jodry. She was delighted, because it was natural and spontaneous, straight from the playbook of the woman she was trying to be.

The other bird was still pecking agitatedly at the terminal she'd set up for them, but Gethli was flapping and croaking and interrupting Jodry every time he tried to speak. Up to her to go smooth some feathers, she supposed.

"Look at what he's trying to show us," she said. "Then he'll be happy."

Plenty of doubting looks at that, but she was the de facto expert on the Rourke Corvids. She looked the bird in the eye and said, "Gethli, can you show us on this display?" Co-opting one of Kern's phantom screens.

An image was there before she'd finished speaking: a spidery map of dots and lines around a central hub. For a moment nobody could work out what it was, even as Gethli added label after label to it: numbers upon numbers building up rapidly into a great untidy rook's nest of information.

Paul solved the puzzle, or at least his arms did: geolocational data for the radio signals they were receiving. Gethli seemed to be either confused or throwing doubt on the accuracy of the *Skipper's* instruments, because many of the signals came with multiple origin points, slightly offset. *A relay station, perhaps?* Miranda mused, even as she tried to untangle bird and mollusc logic. Gethli was still adding and amending data, shifting numbers about as though there was no perfect place for any of it. There was an obvious conclusion to be drawn from what he'd laid out for them, though Miranda wasn't sure if that had been a point he was intentionally making.

"All from the same region," Fabian confirmed with a little skitter of legs, curiously disappointed. The fact of the signals had blinded everyone to their distribution. They had all been ready to meet a planet-wide civilization, even if it hadn't returned to space. *That* was what signals meant to them. Sometimes you needed a bird's eye view to bring you down to earth.

Most of the planet was completely silent. Even if there was a wealth of unbroadcast communication on-planet, they'd have expected the signals they *could* detect to be evenly spread. Instead, everything emanated either from a single point, or a series of close neighbours, depending on which version of Gethli's map you went by.

His work apparently done, the Corvid took to smoothing his plumage, pausing to eye them uneasily. A moment later, he glided over to Gothi and began to tease at her feathers as she continued her obsessive pecking.

“One settlement then, is that all we’re seeing?” Portia asked. “And saying very little.” There were no artificial satellites in orbit, save the ruinous old ship itself, no suggestion of any wider communications. No interest in the rest of the universe.

“In a language we know, though.” Jodry had started isolating individual signals. People speaking to people across a short distance, their signals bouncing out into space as chance and atmospheric conditions permitted. The words would have been familiar to anybody off the *Gilgamesh*, still fundamentally the same Earth tongue spoken by Jodry and Miranda.

They settled down to study what was being said, while Fabian sent drones closer to the *Enkidu*. Miranda watched the birds wrestle with the attributes of the signal data, trying to build patterns with it, and never happy with what they produced.

Two days of signal-parsing led mostly to frustration. What little was being said was inconsequential and personal. By the time it leaked out of the atmosphere to their instruments, it meant almost nothing. Small talk, logistics, arrangements, uninformative without the social context which birthed them. No broadcast media, no great datasphere to raid for perspective. Nobody had compiled all their cultural references into a convenient database or was standing by a radio transmitter reading out their histories. In short, there were people below and they were living small, self-contained lives that occasionally required them to send signals over short distances to their fellows. And, from this, the *Skipper*’s crew could conclude precisely nothing. Not a language barrier but a cultural one.

“It’s amazing that anyone’s here at all,” suggested Jodry. The mood amongst the crew was curiously deflated. Nobody was quite sure how to proceed. The birds seemed more and more unhappy, to the point where they wouldn’t acknowledge Miranda at all, just ate the food Kern printed for them and fussed over the data. The people on the planet below went about their lives in ways that should have been absolutely relatable and comprehensible, but because so little of those lives leaked out from their world, they remained a mystery.

“Put our own satellites in orbit,” Fabian suggested. “Or send small drones to the surface. At least see what we’re dealing with.”

“Except they are *humans*,” Bianca considered. “Technology from the ark ship would be entirely capable of detecting satellites or drones. Yes, we could build one small enough to have a good chance of evading notice, but ‘a good chance’ is not good enough.” She raised her legs to forestall his objections. “I’m not saying it won’t come to that, but we’ll continue to work on the signals for now. Let me consider it.”

Miranda caught Fabian’s eyes with a little gesture of solidarity. She was tired of bird-minding herself. She wanted to *do*, go for the full First Contact routine. Not just sit here behind the moon and observe.

“What about the ship?” was Fabian’s next try.

“Your meaning?”

“It’s dead. There’s no traffic between it and the surface. Abandoned, therefore. We can at least investigate that without riling the locals. We can plot an approach that will let the *Enkidu*’s own bulk hide us from the world below. Let us at least do *something*.”

“You mean a mission in person,” Bianca noted primly.

“I do, yes.” Of course, these things could be done by remote. Not quite as well, with the clumsiness of that extra remove, but quite possible. But they had all of them come here to experience, not just to learn. Fabian wanted to get his palps dirty with some antique technology. He wanted to be the first to walk the walls of the *Enkidu* since its original owners disembarked.

Bianca must have been aware that she couldn’t just keep them studying like schoolchildren. “Who would you take?” she asked him tiredly.

“Portia,” Fabian suggested immediately. “Miranda. Paul?” The old gang; Miranda’s familiars.

The Octopus was already demurring, far more the dreamer than the do-er by preference. Bianca tapped her palps together in agreement, and Kern was immediately budding away a part of the ship, preparing a launch to take them over with everything they’d need.

7.2

Miranda had memories—someone’s memories, various memories from different sensoria—of the *Gilgamesh*. That ark hadn’t had a happy run of it, practically coming apart at the seams by the time it made its final approach to Kern’s World. But compared to the *Enkidu*, the *Gilgamesh* was set to win beauty contests.

They coasted along its length, surveying the damage. The old ship had suffered serious structural failure. There were entire missing sections ruining the symmetry of its design. Incredible that it should even be here in orbit at all. More incredible still were the signs of repair. Like a healed bone, they were looking at the evidence of a calamity the ship’s crew had survived and worked past. Miranda felt a surge of pride within her, and then had to spend time hunting it down and analysing it. A pride from her human parts, that these cousins of theirs had endured and mastered their fate this far. That they’d taken so vast a ship such a very long way, against such odds. She tried to picture the desperate struggle to hold the old hulk together but simply lacked references. None of her selves had ever had such a colossal fight on their hands.

The ark blocked them from the signals of the world below. The single colony was on the far side now anyway; a deliberate choice so their approach to the *Enkidu* might go completely unnoticed. Still, Miranda felt the presence of those planet-bound humans in her head, as though she could still receive their ethereal signals. A tiny island of life, transplanted from lost Earth.

She knew then that she would have to meet them. She would find a way to sell the others on the idea. The desire brought her true nature and her Miranda nature into absolute alignment.

“That’s an entryway,” Portia announced. With Kern’s presence watching invisibly over her back, she was guiding their approach.

Fabian had deck plans of the *Gilgamesh* for reference. Some sort of cargo

hatch, was his best guess. Closed and sealed, and it was doubtful any of the automatic systems were functional now, but they could still get in. Portia clamped their little vessel beside the hatch and they suited up, protective garments to fit the bodies they wore. Miranda had a moment of fugue memory then, a few seconds when she was disconnected from her body and tumbling through the experiences of her past selves. Entering derelict ships was a dangerous business. Even if there was nothing worse aboard than the ruinous state of the vessel itself, there were plenty of ways to get yourself killed. And there had been one wreck—

No—

Where she had been exploring, seeking answers just like this, and there had been something—

No, stop it—

Something terrible waiting for them. Alive after all that time.

I don't want to—

Sleeping, then waking, moving...

No!

Reaching for him, flowing out into the stale air—

“Miranda!” Portia’s legs tapping gently at her arm. She’d frozen up, floating untethered in their little space without her helmet on. Fabian was waiting at the airlock Kern had formed for them, watching blankly and anxious to get going.

For a moment, the name “Miranda” meant nothing to her.

Grimly, she took hold of her various selves and separated the strands of them. Her remembrance was returned to the archives. She didn’t like recalling those moments. The points when the Humans had met her. Or *them*, as she had been, at that point. The *them* she once was, before she understood about the existence of entities outside herself.

“I’m fine,” she told the others. Kern would know how much of a lie that was, from biological tells unique to what she was. The AI said nothing, though, to Miranda’s eternal gratitude. She didn’t want anyone calling the expedition off just as they arrived.

“I’m fine,” she repeated, when she had her helmet on. Portia was still tapping at her arm concernedly. “Just... a moment, that’s all.”

Kern came along in the form of a Portiid-shaped drone, controlled by a splinter-instance of her mind. She led the way to the hatch and the four of

them crouched on the outside of the great derelict ship as she and Fabian tried to waken anything within. Miranda analysed the outer hull, recording the litany of wear and tear that time, impact and vacuum had written there.

Nothing was active of the systems within. Fabian's best guess was that the hatch and every other associated mechanism were all irrevocably seized together in a combination of corrosion and vacuum-welding. In the end, it was down to cutting their way in. Kern took the vacant ship and deformed it into a dome about the hatch, in the unlikely event anything should come flying out. But there was nothing. Vacuum within met the same emptiness without, and not the faintest breath of anything stirred.

There were a handful of shuttles and launches in a cavernous space beyond. Miranda had lived for a long time on small ships, so she had to delve back through her memories to find a comparable experience—Paul living on one of the huge mobile cities the Octopuses built. Even then, she recalled spaces made intentionally complex with artificial reefs, patterned with shadows and depths. Not this great airless cave of a hangar. The yellow-white bioluminescence of their lamps faded away into darkness even as it brushed the far walls.

They all floated in, jetting gently out over the scatter of ships. Objects hung in the air: tools, broken parts, a single gauntlet. None of the shuttles was intact, and Miranda guessed they'd probably been cannibalized for parts, their picked carcasses left behind forever.

"Is this where they set out from, do you think?" Trying to picture the scene, recreating minds' eyes for the best vicarious imagining.

"Good as any." Fabian's communication not much more than a human grunt; a free-floating Portiid was limited as to what they could say, not able to use their feet. Then he'd located a human-scale exit, already open. Navigating as best he could from the *Gilgamesh* plans, he led them through it, gliding through a veil of dust that glimmered in their lights.

She let him lead, slaving her suit to his course so that she didn't need to worry about the fiddly mechanical work of steering. It worked until it didn't, as the saying went. Every so often Fabian would skitter under a gap or make a leap that was fine for a spider but problematic for a human, and she'd end up rebounding from the wrong wall and have to pick up the reins again. The rest of the time she was... experiencing. Setting down memories that she would unpack over and over. She would be Miranda, recalling lived events;

and later she would be some other self, invoking the Miranda-she-had-been. This would be a key moment she'd come back to often, she decided. This was history. The first ark ship ever found aside from the *Gilgamesh* itself. And a living human colony beneath them, transplanted direct from Old Earth. A monument to the determination of the human spirit against all odds; distance and mischance and the uncaring cosmos be damned.

"You're happy," Portia observed, startling her out of her reverie.

"I am?"

"You're smiling." Or that was the tactful translation. "Doing that thing humans do with their faces" was a more precise version, but Miranda understood what her friend meant.

"I'm happy for them," she said.

"Them who? There's nobody left here." They glided through a half-closed hatch and Miranda had to take over her own movement to push through the narrow gap. Kern's drone ranged ahead, nimble as a real Portiid and less worried about physical harm.

"All of them. It's strange. I mean, they're not *me*." She had the old terraformers within her, and she had the post-Portiid Humans, capital H, but she had never had the chance to interact with the ark-ship builders. They were a generation lost to her—or they had been until now. If she could only make contact... She felt a bizarre need to meet them and tell them how well they'd done, however patronizing that might seem. She needed to show them their struggles had been seen and appreciated. And then, if she was really lucky, she could persuade one of them to donate their mindset to her, and would be able to bask in the sunlight of her own appreciation, come full circle back to her. *What stories they could tell, that I could make into my stories.* She was also aware of all the pitfalls of that approach—not just the hungry abyss of her true nature, but the sheer appropriation of it. But she was hungry for the universe and its new experiences. *I only ever borrow. I don't devour. I just copy so well that I become you. Don't hate me for wanting to be you.* Another moment of fragility, her Miranda-self fracturing briefly. This time she repaired the damage before anyone noticed.

Then they were out in another vast and cluttered space and Fabian was complaining because apparently the internal architecture of the *Enkidu* and the *Gilgamesh* weren't that similar after all. He'd been looking for the crewspaces, he said. Instead they were at the cargo end of things. Long ranks

of capsules stretched as far as their lamps could show them. And far further, Miranda knew. Compartments of these cold sleep beds must take up more than two thirds the length of the ship.

“This was where they slept,” Miranda told him. “This is good, too. It’s history. All those people, going to sleep on Earth, actual Earth. Then waking up here in the light of another star, ready to start their lives again. Incredible.” Feeling her heart swell—or at least the hormonal-cognitive spike that humans traditionally associated with that blood-pumping organ.

Portia took a leap and a long glide onto the nearest pod, clinging there as her palps fidgeted, and she cocked her body to examine her new vantage point. Her comms channel made a sound that didn’t have an immediate human-language equivalent. A bad sound, though.

“What is it?”

“This one’s still occupied.”

Miranda borrowed the electronic senses of Portia’s suit. There was a panel set into the cold sleep capsule that might once have let them look within, but it was opaque now, crazed with cracks and ice. Instead, Portia was using her sensitive feet, tapping and letting the echo speak to her.

“Just ice, surely,” Miranda corrected her. Her own inner Portiid took the sensory data and translated it. Solid ice would resonate differently. “That doesn’t make sense,” she insisted, although explanations—bad explanations—were queuing up inside her.

Fabian kicked off as well and her suit followed, still slaved to his.

“The *Gilgamesh* suffered considerable systems failure,” he noted. “Not all of its passengers survived to reach our world.”

Miranda considered that, as she was carried along in his wake. It was a good thought, in a way. A final tragedy for the unlucky occupant of that one pod, yes, and any other victims of mechanical failure. But in the grand scheme of things, objectively, not so bad. It became part of the tragic-yet-heroic narrative, part of the odds the others had endured and overcome. It even felt *right*, to a human narrative sense. There had to be a cost for the victory the planetside colony represented.

“This one’s occupied too.” Portia had jumped to the next pod. “I can see the face through its window. I’m sorry.”

“Systems failure.” Miranda abruptly became an instant and unshakable convert to Fabian’s theory. “It happens.”

“Miranda,” says Kern in her ear. The drone had gone ahead, of course. Many pods ahead, outstripping even Portia.

“We know they made it. They saved everyone they could,” Miranda stated firmly. And it was a failing of what she really was, in a way. She had so many selves, all the way back to when she had been a *they*, with only a very limited “self” to call upon. She was a book of stories, and she preferred the ones with a happy ending.

The spiders had stopped moving now, Fabian crouched on another pod, feeling out the solid mass and spaces of what was inside, the body within the ice within the tomb. Miranda floated over him, held stationary by the minute adjustments of her jets.

“Miranda, they’re all—” Kern started but Miranda cut her off, speaking over her on all channels.

“It’s just this compartment. The systems failed here, obviously. Let’s move on. Move on.”

“My remote is in the next compartment. The containers there are all occupied too.”

“They are down there on the planet,” Miranda pointed out, eminently reasonable. “They survived. They succeeded. They wouldn’t just... No. No, it’s...”

She looked at the ranks of pods, stretching into the darkness on all sides. They were surrounded by them, above, below, all sides.

“Miranda—”

“You can’t say it’s all of them.” It was hard to speak for some reason.

“Your biological indicators are exceeding tolerance,” Kern told her calmly. “Could you stop doing that, please.”

She wasn’t doing anything, was she? Except a lot of interesting things were happening to the body she was wearing and, being a blank slate in and of itself, it must be *her* making them happen. The heart was going far too fast, the gas intake being performed too shallowly and rapidly. And there was a lot of chemistry washing back and forth in her that was driving some particularly powerful emotional responses. All terribly interesting, quite the experience. But she didn’t like it. Miranda didn’t like it. In fact, what *she* was experiencing was *Miranda* not liking it. She was a victim of her own powers of mimicry, method-acting a panic attack and unable to escape it, even as she observed it from the outside. Breathing faster and faster to less and less

effect. She could observe the carbon dioxide levels in her blood peak dangerously, all the medical monitors in her suit shouting at her. Her lips and extremities were numb and a lance of pain lashed through the skull she was inhabiting. And it was all terribly interesting and she would really like it to stop any time now, because Miranda was terrified and she was trapped in the persona of Miranda and—

Portia landed on her back, grappling her with all eight legs. With her palps, the spider accessed Miranda's suit and had the medical system give her the shots she should have already authorized. Immediately she felt the body calming down, separated from Miranda by a screen of medication. And, without that positive feedback loop, her mind was calming too. Calming enough that she could reintegrate with it and remember who she was and what was going on.

"I'm sorry," came Kern's distant tones. "I still haven't found any empties. I suggest you head towards the other end of the ship and I'll keep searching."

"Yes," Miranda heard herself say. "That would be wise." Still holding the revelation at arm's length in case there was any way she could make it not be true.

7.3

There were some empty beds, Kern's exhaustive search revealed, but perilously few. The vast majority of all the human beings transported aboard the *Enkidu* from Earth had never left the ship. Never even been woken.

Back aboard the *Skipper*, Miranda pondered the broken pieces of her triumphant narrative, and wondered who, exactly, was on the planet below. It was a question Fabian had been considering too.

"A single drone, to minimize the risk of detection," he proposed. "Just so we can see."

Miranda was all for it, but she held her peace, listening to Jodry and Bianca as the voices of caution, waiting to see which way Kern would go. Until Kern came to her, with all the AI's usual tact, and pointed out she'd been shirking her duties as Interlocutor. She needed to return to the birds.

The Corvids were becoming more and more agitated. They were still playing with the signal data, and it seemed to be having a deleterious effect on them. When Miranda joined them, the pair looked physically bedraggled, feathers out of place and a few drifting about as though they'd been fighting. Frustration kicked within her, aimed at them. And she knew—the Miranda within knew—that was unfair. The birds were on their own adventure and, in taking them aboard, the crew of the *Skipper* were obliged to do what they could to look after them. The substrate that this Miranda existed in was hungry for discovery, though. She felt all the forming and unforming selves within her pulled towards Fabian and his scouting expedition. It was true, Kern couldn't *make* her stay with the birds. They didn't have that kind of autocracy on board. She—both the individual Miranda and the greater entity containing her—knew of ships that had split because of irreconcilable differences. Nobody had come to blows. The aims of one ship had never become so divergent and unamenable to discussion that other ships had needed to take action to stop them. But the possibility was certainly there. It

was a big universe, however, and of all the treasures in it, the regard of one's peers was highly esteemed. They messaged constantly over vast distances, lived long lives, met up infrequently but repeatedly around the latest novelty to be uncovered. Thus far, nobody had discovered anything worth tearing it all down for. Because there was always more universe and always more time. Because, thanks to the Portiids and the native life of Nod, understanding the viewpoint of others was so much easier.

And so Miranda kicked against her responsibilities, but went over to the birds and asked, "Is there anything I can do to help? What's the problem?"

Gothi and Gethli regarded her. "Absent inputs," the male bird said conversationally.

"A lack of consistency within the data set," Gothi added, pecking at the screen. As Miranda watched, Gethli pulled all the signals apart, hiding individual snippets of information throughout the archives Kern had made available to them. Gothi chased him away and then painstakingly retrieved everything and tried to put it back together again. At first Miranda thought it was a game, then that it was a genuine fight between them, just played out through an electronic medium. And then she decided she didn't know *what* they were doing, save that they were becoming obsessive about it.

"Maybe eat something?" she suggested. When that didn't prompt a response, she had Kern print out the protein-rich food they'd proved to like and put some in front of them. They picked at it distractedly, but it didn't take their minds off anything.

The others had worked out the parameters of Fabian's remote mission, and Kern had prepared the drone. On its way around the moon and across the void to the world below, it would be a fist-sized package, hopefully far too small for the locals below to detect. Once it hit atmosphere, the outer rind would burn off and something like a filmy jellyfish would hatch out. The artificial thing that would end up undulating through those skies was based on biomechanical lessons learned from life forms on Nod. If Miranda thought back far enough, down the ladder of her incarnations, she could even picture the originals. As seen by Erma Lante, ill-fated first human visitor to her world.

Later, as they slept, Miranda cast an eye over the birds' calculations. The aggregate efforts of the two of them together could just about be seen as some kind of data analysis, however haphazard. *Or*, she cautioned herself,

it's powerfully efficient in some way I'm not seeing. Certainly the birds' approach to data didn't follow any path she might have chosen, but they were from a cognitive line she had no contact with. Better to suspend judgement.

Fabian inserted the drone into atmosphere some way from any signal source and flew the resulting medusoid remote in low. The first images they received were of barren, rocky ground, blotched with spreading circular crusts of rust and saffron. Nothing to get overly excited about, was everyone's general impression.

Kern created a thoughtful sound to let them know she had Opinions. "This, I recognize," she told them. "This is third-stage terraforming. We're looking at artificial organisms to process the soil and water and atmosphere. Still very early, but after this perhaps you'd move on to a fully biological microbiome, begin bootstrapping something that might lead to some real life. It's obviously remained stable since it was laid down." In the past, they'd found worlds where this engineered life had run rampant, despite its designers' best efforts. Kern was quiet after that, her projected presence still visible and animate, communicating just through her silence.

A glance at the birds showed Miranda they were awake and back at their play/work. Not too agitated yet, huddled together like conspirators and whispering in throaty voices. She could continue to watch Fabian in good conscience.

"We should be able to see them by now," Portia complained, practically clambering over the male spider because she wanted a go at the controls. "What about that?" Picking out data from the drone's longer-range instruments.

"Just natural ore outcroppings," Fabian insisted. "No, let me—" Muted as her weight pressed on his legs.

"It's something—"

For a moment they lost signal entirely, each blaming the other. The consensus among the crew was that they'd nosedived the remote into the lichenous wasteland and would have to start again. Then their far-off eye was opened once more and there was green.

A moment of confusion. Portia chased Fabian away from the controls and then contritely backed off to let him return to them. The remote had already coasted on while they were squabbling. Now it was passing over what Miranda could only characterize as a field. The rugged, hilly land ahead was

patched with them. Not all jostling together, fence to fence. Instead there were ragged, irregular areas partitioned off and made into what were surely farms. Someone had gone over this sparse land and identified the absolute best prospects for agriculture, and abandoned the rest to the dust.

They saw buildings, small and low. Fabian dared swing the drone closer. There was a blocky house—a recognizable dwelling a human might build. The lower floor was built out of granular slabs. Exactly the sort of thing the *Gilgamesh*'s printers might have turned out if you fed the local soil in as raw material. The upper storey looked like actual wood: planks laid together in a way that suggested the carpenters had been learning their trade on the job, to Miranda's eyes.

There was another building nearby with fewer windows, which she guessed was for storage. Along its wall, animals were penned: grey, burly things with rooting snouts. Nothing familiar from any planet any of her selves had been on, but Kern said, "Pigs." A thoughtful pause. "Or something derived from pig stock, maybe. Some evidence of engineering."

"All seems rather primitive," Bianca suggested.

"It was a plan," Miranda told them. Nobody understood her, and for a moment she didn't quite understand herself. The thought had risen up from someone she'd once been. Not even a human, but a Portiid researcher who'd been fascinated by the *Gilgamesh* and the desperation it had represented. Casting fifty thousand humans out into the great emptiness of space, what would they have done with a world less hospitable than Kern's own? Based on the archives aboard the old ark, there had been contingency plans.

"Sustainability," she told them, trying to chase down the fugitive thought. "That's your first priority."

Fabian told the remote to rise, casting its eye further across the landscape. There were similar farms dotted up the rise of the land—similar but not identical, each shaped to a particular and individual preference. Then, nestling up against the foothills, there was what Miranda could only think of as a town. Not large; insignificantly tiny by the standards of a Portiid living city or one of the great oceanic conurbations on Damascus. Somewhere fit for thousands of humans, though. And, beyond it, the slopes of the hills were heavy with dark forest: Earth trees.

"Pull up," Portia told him. "Pull away." She had isolated images from below: a crude vehicle grinding along a dirt track, faces looking up. The

drone was filmy and translucent, but not invisible. A flying object, unidentifiable. What would they think?

Fabian reluctantly retreated, pulling the drone away to the upper atmosphere, insisting no harm had been done.

Everything degenerated into a circular discussion of what should happen next. Fabian was all for more drone work, but Bianca pointed out they still didn't know what detection capability the locals had. Jodry proposed orbital satellites to just spy on the humans from the edge of the atmosphere. Even that might be detected, Bianca countered. The talk went round and round and Miranda backed out of it. It was one of the drawbacks of having so much time; decision paralysis could set in on a cultural level.

Miranda could feel her familiar need to *experience* for herself growing ever stronger. It was her base nature. But she relied on the Miranda persona to keep it in check. Left to her own devices, she'd be invading the world single-handed, seeing everything, trying everything, *being* everything. The civilizing layers of Miranda-ness ensured she never made the suggestion, but the drive within her started looking for another way to get what it wanted. A civilized way, but still an expression of that primal desire to *know*.

She was aware there was a way these plans were supposed to be laid. That you started with what you wanted to achieve and then constructed the best method to reach those ends. This was how Miranda would have set about something. She wasn't really Miranda though. As an entity that constructed its self post-facto, she approached things differently. She started with the method that she *needed* to employ—that personal experience she craved—and then set about finding an end which could be best satisfied by those means.

Around that time, the birds had a serious, raucous fight and she had to go and try to break them up. Except then it turned out they weren't fighting at all but had worked out how best to grab her attention.

They'd littered their virtual space with messy, inefficient models of the data, none of which seemed to make much mathematical sense. They were, however, very proud of what they'd done, or at least determined that she should see their work.

"Very good, yes," Miranda told them tiredly, her focus elsewhere. Eavesdropping on the main discussion in case anyone else was inadvertently paving the way for her own designs.

But the Corvids didn't seem to think it was very good, or else they'd evolved to recognize being patronized. Gethli went as far as to peck hard at her fingers. The pain came to her slightly second-hand, as always. *How would that feel to Miranda? Ah, yes.*

"What, then?" she demanded. They'd fluttered back out of arm's reach, watching her warily.

"The data set is unsatisfactory," Gethli told her reproachfully. "Further investigation is required."

"We're collecting new signals all the time," she pointed out to them. "I mean, you know that. You've been adding them in."

"Signals and signals." Gothi was at the terminal, pecking in the most recent items sent their way from the planet. Harvested by remote satellites and then beamed to the dark side of the moon so that two birds could complain about them.

Gethli leapt on her and chased her away, apparently enraged save that a moment later he was standing quite calmly, making his own adjustments. "We present our findings," he told Miranda, and a stab of amusement cut through her own annoyance because, were they...? Yes, the birds' human speech had a distinct *Kern*-ness to it now. She couldn't miss it, mimic as she was. They had obviously found a new role model in the ship's AI.

Because he was plainly not going to let her alone until she did, Miranda ended up sitting beside him, watching him move through his models and simulations. Nothing seemed novel about it. The birds had catalogued and ordered the transmissions based on topic and keywords, showing at least that they were good language analysts. A complex piece of programming could have turned out very similar results, she guessed. At the end was a trailing string of doggerel, just odd bits and pieces of incomplete transmission that contained insufficient information to classify. Except that the birds had, with a monomaniac patience, sorted them into different boxes anyway.

"Some of this is just background noise," she told them, on the offchance she would be understood.

"That is an entirely unsatisfactory approach to the signal," Gothi cautioned her, more *Kern* than *Kern* in that moment. She butted Gethli aside and began to highlight patterns in the static. A kind of electromagnetic pareidolia, Miranda decided, seeing faces where there...

Weren't...

“Wait,” she said. “Run through that again.”

The birds were working in tandem now, squabbles forgotten. Model after model was dragged front and centre of the display, revolved, disassembled, reconstructed. The bulk of the signals—the comprehensible *Gilgamesh*-era radio communications from the human settlement below—were clumped together, ordered, set aside. Leaving only the vestigial tails of information, which nobody had really cared about because the *rest* was plainly the important part. Unless, apparently, you were a bird.

“Can I...” Miranda heard her own voice quaver. She was suddenly very excited indeed. “Kern...?”

“You have at least persuaded them to quieten down,” the acid tones of the AI sounded in her ear. “What are they... what’s this?”

Miranda stared at the isolated snippets of data, the repeating patterns, so very close to being just background radiation, solar interference, the meaningless song of the universe.

“There’s another signal from the planet,” she said. “I think...” Because if it was a signal, it was nothing any ark-ship denizen would use, nothing anyone from their own diverse culture would produce.

Down there was something that could only be characterized, even to the microbial substrate that was pretending to be Miranda, as *alien*.

PART 8

LOOK UPON MY WORKS, YE
MIGHTY

Imir

Now

8.1 Liff

That night Liff has the dream again, where Landfall's empty and she's alone. It used to come just once a year after Remembrance, but recently it's been ambushing her at random intervals, more and more often. She's stood in the heart of that deserted town so many times now, that during the dream she actually wonders if it isn't really the other world, with all the people in it, that's the fiction.

The thunder wakes her, because it's the middle of Afterstorm, the thirty days or so between summer and winter when the shift of the seasons brings torrential rain and unbroken cloud in off the ocean. When people stay indoors as much as they can, and the fields turn to mud. She listens for the drumming of the rain on the roof, because Afterstorm thunder's never dry, but there's nothing. It's as though that sound echoing in her ears is something else instead, like departing wings.

She sits up in bed, staring into the dark, not entirely sure what she might see if she threw open the shutters to her window. It's as though she was dreaming twice. As well as the empty-town dream that's been stalking her so much more closely all summer, there's an overlaid impression that she was also dreaming of not being alone in her room. Of two hunched figures sitting by or on her bed, whispering to her. Filling her mind with impossible things. She has a story in her head that's not in the book, one of an icy world and a dying town and a great wheeling congregation of birds. Not an unkindness, say the voices from her other dream, but a *kindness* of ravens. A gathering of birds, two by two. A host which became a recording medium, carrying a kind of humanity down the generations. Even when the actual humans were all gone. A mirror-world to Imir, where things had gone differently. Liff even finds she understands the salient differences: how the people she was told about in her dream were not like her grandfather and the other Founders, but instead the mythical Ancients Miranda has taught her about. And yet they

failed, while the good people of Landfall are still expanding their reach across the world which fate chose for them.

She opens her shutters. The night sky is a wall of cloud but there is a faint lambency limning one horizon. Off past the furthest farms to the sea, the sky shows that dawn is not far off. In its light she can observe the line of deeper dark where the trees start marching up into the hills. There are pale scars there, where rains have overcome the hold of roots and the land has slipped downslope. Last year, three people were killed in slides like that, but each year there are more and larger trees and the danger grows less. Every year a little better, is the way of life on Imir.

For a moment, the horizon ripples in her sight, not immutable geography but the back of the beast, the Wolf that is the world. She pictures it, circling the edge of human reach and knowledge of Imir, driven further out each time a new farm is built. Except that's not quite right. If there is a Wolf (there isn't a Wolf) then it is in here with her, in everything. The very air is its breath, the dreams of Landfall its thoughts. Somehow.

She dresses, hearing the first creaks of the house waking up with the dawn. The skies hang heavy but she thinks there'll be no rain today. First chance she gets, she's pushing for an errand into Landfall. There must be something they need: parts, cloth, paper, news. Her parents and uncle have plenty of jobs they need a brief span of dry weather to get done, so they give her a list and she runs for town, knowing she's already a double agent, as though she were working for the Seccers.

She had two dreams last night, which means one of them was real. There were figures whispering to her, telling her secrets about themselves because that was the deal she'd made with them. Telling her what they needed her to do, and so when she reaches Landfall she gives her list to the stores-keeper and then runs off to Fabian's Fix-it shop.

She was only going to ask after the woman. She assumes that, as school won't be in session until winter starts, Miranda's out at their own farm, helping Paul and Portia with all the little jobs that accrue during harvest and have to be put off till later. But Fabian's out fixing and it's Miranda herself who opens the door and blinks down at her.

"Liff?" She's been the teacher these last few years, and though she does her best to help every child in her care, it's true enough that Liff is her favourite. Liff wants to learn and understand and fix things, and perhaps

that's why those two voices in her dream spoke to her so powerfully. They were lost and confused. One of them only saw the truth, and one of them only invented lies that might, perhaps, become a new truth if they fitted the world well enough. Together, though, they seemed a lot like Liff feels. They told her there was a great puzzle or problem at the heart of the world, and that rang true in Liff.

The Witch, their mistress, was trying to fix that problem or solve that puzzle, they said, but she needed help. She needed to find the people who didn't fit into the simple, predictable machine that was Landfall, and Liff knew immediately who that meant.

Sitting in Fabian's kitchen, nursing a mug of warm milk, Liff stares huge-eyed at Miranda. There are some papers out on the table that the woman clears away quickly after inviting her in. She claims they are just some sketches of Paul's, but they looked like maps of the farm to Liff. *Are they really Seccers then?* And she just says it, right at that moment, as if it isn't the most dangerous thing in the world, and Miranda wouldn't kill her to keep it secret. "Are you Seccers, you and the others?"

But the woman shakes her head, doesn't even seem surprised. "We're just from the out-farms," she says. "I know what people say, though." People are always blaming this or that misfortune on the Seccers, and at the same time they don't really believe in them. Liff is old enough to understand that. A thought strikes her, almost as if it was a dream she had: *If things were worse.* If those small misfortunes became large misfortunes, what would that do to people's belief in the Seccers? She seems to see a furious crowd for a moment, in her mind's eye. A scaffold, nooses from a dead tree. It's very real. She clutches at Fabian's table to stay in her seat.

Miranda looks tired, as though she too hasn't been sleeping well. She nurses her own milk. "It's a curious belief, isn't it? The idea of another settlement somewhere, that nobody's ever seen for certain. Oh, plenty of stories, circumstantial evidence, second-hand accounts. As though there could be a whole town out there, close enough to interfere with Landfall, and yet just... unfindable, unknowable. A kingdom under the hill almost. As if people need there to be something." Her face changes, an internal dialogue going on. "Or as if they know there is *something*, and that's as far as they can conceive."

"I heard my folks say it was the Watchers sent them down," Liff says,

almost a whisper. It was Uncle Molder, actually, and he was drunk at the time, with some of his friends. A prize milk-pig had died and they were slurringly blaming it on Seccers, cursing them and those who sent them.

Miranda is very solemn. “That can’t be the case, I’m afraid,” she says quietly, and with such certainty that Liff is frightened of her. A crack in that teacherly facade, showing knowledge nobody should have. Liff is then abruptly sure that, Seccers or not, Miranda really isn’t from any out-farm she might recognize.

“I need you to go somewhere with me,” Liff says, and realizes she hadn’t been about to ask, no matter what the dream voices told her. Her fondness for her teacher would have outweighed the demands of a witch and her familiars. Except hidden in her mind is a glut of knowledge that she can detect but not *know*. Terrible secrets about Miranda’s origins and true nature, the taint of monstrosity superimposed over the woman’s kind, pleasant features. It eats into her loyalties until what Liff would naturally do gives way to a new drive. *Reprogrammed* isn’t in her regular vocabulary, Imiri technology sitting where it does. It’s as though the nature of those familiars has taken hold of her; as though she sits in the hollow made by the mirror halves of their collective mind. *This* is the thing that is new and different and out of place, and she leaps on it. *This* is the incomplete pattern she needs to restore.

“Where’s that, Liff?” Miranda asks her.

“I need you to come with me to the Witch.”

Miranda blinks. “The Witch.”

A great solemn-eyed nod from Liff.

“Liff, there isn’t a witch.” It’s plainly a story Miranda has heard, but her disbelief wrongfoots Liff. Here is a woman who has a toehold in that invisible world, surely, and yet she scoffs. “Just like the Seccers, people want something to blame for when things go wrong. It’s a natural human drive.” There’s an odd spin she gives “human” too, a strange emphasis to the start of the word.

“I’ve seen her.” Sitting there Liff feels weirdly like the grown-up in the conversation. She knows things that Miranda doesn’t. “I’ve met her and she wants to see you.”

Miranda is very still, but Liff reads curiosity more than caution. “Specifically me?”

“The people who don’t fit in.” Again she feels kinship with that bivalved

mind existing between the two halves of the ravens. “And you’re all like that. But I only know you to ask.”

“Liff.” A long pause. “Who or what is this witch, exactly?”

“I don’t know. She’s very old. She’s always been there. Or else...” Liff knows this, but simultaneously knows it isn’t true either, like the two dreams are overlapping. “Or else she’s new too. Except...” Vertigo, as she tries to think just *when* she met the Witch. Her mind throngs with mutually exclusive answers. “Please,” she gets out. There is a knot in her head that she picks at and picks at, and knows it’s the same knot the birds are trying to disentangle too. It feels like something malignant growing in the centre of her brain, a twist of illogic spreading through her world. She stares mutely at Miranda, still clutching the table, and the woman’s look in return is only concern.

“All right then,” Miranda says. And they go.

Heading into the hills during Afterstorm is just one of many things her parents have explicitly forbidden Liff from doing. But she figures, because she’s with an adult, it’s all right. Although Miranda doesn’t seem to understand that the rains make the ground treacherous, and that a whole hillside, trees and boulders and all, can come sloughing down without warning. There’s a reason that nobody’s built a farm closer to the uplands than Liff’s own home. Flash floods and landslides. And yet Miranda is just blithely striding along beside her, with nothing more than a pack and a walking stick.

Seccers would know, Liff decides. If there were any Seccers, surely they’d know the wilderness better than anyone. Just another entry in the list headed, *So Who Is Miranda?*

She’s worried she won’t find her way, and will just lead Miranda in circles through the woods, until they have to go home in disappointment and embarrassment. But today the woods are ready for her. She goes to where her schoolmate saw the Witch once, or said she did. Or Liff imagined the story entirely, another dream of something that feels like it happened to her. Or to someone like her. The clashing thoughts fall on her as she steps onto the path so that Miranda has to prompt her, and she registers—mostly from her companion’s concerned expression—that there are tears in her eyes and she’s shaking.

“What is it?” If Miranda were a Seccer come to rob and sabotage and plot the ruin of Landfall, she wouldn’t care. But she plainly does care. No matter who or what she is, she’s kneeling by Liff, staring into the girl’s tormented face, and there’s nothing but worry in hers. “Liff, what’s wrong?”

Liff is full of words, too full to get any of them past her teeth. I had a dream there was just me, she wants to say. I had a dream they were building a scaffold for you. I saw terrible things happen to you, and from you. I spoke with the Witch. I made a deal with her familiars. I saw my grandfather. She knows all these things can’t be true, and yet she remembers them simultaneously.

The Witch will help. She doesn’t really believe that—everything she’s seen of the Witch suggests the only person the Witch is intending to help is herself. But the Witch is part of this. So just perhaps, in advancing the Witch’s plans, Liff can extricate herself from between the conflicting teeth of these non-memories.

It’s raining now, but at least they both have good coats. They skid and slip as the water starts finding its winding ways down the slope past them, turning the topsoil to mud. The interlocking fingers of the roots beneath hold the ground together, though, and somehow the path is still there. As if its exemplar in Liff’s mind is overlain onto the shifting ground. And then she’s able to look up and see the cleft in the hills that is the Witch’s cave, its mouth curtained by a fine spray of droplets. They’ve arrived.

There’s a moment when Miranda is about to doubt her, to call the whole thing out as some child’s game, but then the Witch is there. Stepping out of the cave mouth in her strange clothes, with her strange face, which makes Miranda and Liff look like sisters. A whicker of wings and the two birds come down to roost in a tree nearby, hunched like undertakers.

“I’ve brought her,” Liff says because, if not that, the silence would become unbearable. The Witch is stalking forwards eagerly, cracking her knuckles in an unpleasant, businesslike way.

“Let’s get this nonsense over with,” she says, in the manner of a woman who has more important things to do with her life than hang about in caves up on hillsides.

“You,” Miranda says. Not greeting an enemy or welcoming a friend exactly, more just blank puzzlement. “What’s going on?”

“Extraction time,” says the Witch. She’s in arm’s reach now and putting a

hand towards Miranda's breast as though about to tear her heart out, but she stops abruptly and pins Liff with her stare. "Are you trying to cheat me, girl?" Overhead the clouds, which had just been hanging heavy with drizzle, begin to thicken and roil. The whole forest hisses as the weather pulls an impossibly abrupt turn and the downpour starts. The Witch opens her mouth again, but thunder swallows whatever she has to say.

"What?" Liff feels a stab of utter betrayal, shouting over the boom and rattle of it. After all she's done! "Your birds said to bring someone who didn't fit in. I brought her!"

The Witch looks from her to Miranda, and again her reactions, her expressions, aren't becoming of a mythical villainess. She's exasperated and basically too important and busy to be dealing with minutiae like this. "This?" she asks, and just straight-arms Miranda, shoving her hard in the chest so that the woman sits down heavily in the mud. "This isn't it! I can't do anything with *this*! Where's the rest?" Again thunder, like punctuation for her sentences.

"How are you doing this?" Miranda demands, wide-eyed, dragging her hood up against the weather. "What did you do, Kern?"

"I?" the Witch shrieks at her, lunging halfway towards her, fingers crooked. "I did nothing! This is your fault! It was all your idea, and it's *you* keeping us here." She raises a hand as if to strike the woman and lightning matches the movement, crackling across the spine of the hills. As if recognizing that the very weather is undercutting her protestations, the Witch grimaces. "It's just because I'm so much *more* than you," which is apparently supposed to be an explanation as well as a boast. "The environmental focus weights towards those who take up disproportionate space." Complex words not helped by being shouted over the storm. But then the Witch is jabbing a crooked finger at Liff. "Look at *her*!"

"What about me?" Liff demands. She's soaked to the skin now, but anger keeps the chill out. She *did* what the Witch asked, and now she's being cheated. "Where's my grandfather? You promised me my grandfather!"

"Liff..." Miranda starts and the Witch rears back, bristling with indignation.

"I did no such thing. I don't even know who your grandfather *is*." And then she looks up at the two birds. "What are you two up to?"

"It was," one of them croaks out in a gap between the thunder, "her

price.”

“You know!” Liff is weirdly aware of having had this conversation before, or something like it, but can’t work out when that would have been. “The Captain! Heorest Holt! He came to visit you...” Remembering the old man at the forest’s edge, but... *had that happened yet?*

“Liff!” Miranda says again, still sitting on the needle-carpeted ground with her back to a tree.

The Witch blinks. “The... Captain?” She actually ends up sharing an uncertain glance with Miranda, the two of them against Liff, and that seems particularly unfair. “From the *Enkidu*?” Her bafflement calms the thunder, lessens the rain a little, though fresh streams are already coursing past Liff’s ankles.

Miranda hauls herself to her feet, leaning on the tree. “She says she saw... Is it impossible, though? The suspension beds on the *Enkidu*, perhaps, or...?”

“We’ve both seen the beds on the *Enkidu*.” Something terribly bleak in the Witch’s tone.

“He’s not on the ship,” Liff tells them. “He’s my grandfather. You took him. I’ve done the task you set me. You have to give him back to me now. That’s how it works.” The wind and the rain are rising again, so presumably the Witch is getting angry once more, though it doesn’t show on her face.

“Liff.” Miranda’s at her side now, hand to her shoulder, bending to speak into her ear. “You mean Holt the Founder?”

“Yes!”

“Liff, how long ago was that? How many generations since the first colonists landed?”

“Perhaps,” says the Witch in the most patronizing tones possible, “it’s just local argot for any elderly ancestor.”

Liff opens her mouth. Shuts it. Thunder speaks for her.

“He’s not dead,” she says, even though she can remember the service they held, when old Holt never came back. Even though, intellectually, she knows she can’t remember that because Landfall was founded almost two centuries ago and *none* of the Founders is still alive, not even Gembel who was the youngest. And yet she remembers growing up and the old man being there, her grandfather, her mother’s father. No suspension beds, no mysteries, nobody pointing and screaming at the return of the ancient mariner. Her grandfather, with his stories and his kindnesses, and she just wants him back.

At the same time she understands, with inexorable logic, that she could never have known him at all.

She screams at the Witch and Miranda, the pair of them in cahoots somehow. Part of the same wrongness in Liff's life. Then Liff's running off through the resurgent rain. Their voices are lost in the thunder, the Witch just as furious as Liff feels, nobody getting what they wanted out of this deal. She skids and slithers in the mud and the wind hunts through the trees after her, yanking her this way and that. She doesn't care. She's going... somewhere. Home. Town. Elsewhere. Somewhere she can only remember but simultaneously could never have seen.

Miranda's voice is high over the roar of the rain, calling for her to stop. The two birds wheel past her, plucking at her clothes with their beaks and the hooked fingers of their feet. The wind takes them and drives them away, shrieking. In her head Liff finds just a cracked and scattered puzzle of recollections that, a moment ago, had seemed a whole person: herself.

"Liff!" Miranda behind her, stumbling down the hillside, bouncing from trunk to trunk as she tries to catch up. "Wait!"

Liff turns on her, and for a moment there's one memory: Miranda on the scaffold alongside her fellow strangers, the noose at her neck as she's kicked off. A transformation, form into formlessness. Miranda reaches out but Liff screams and recoils rather than let *that* touch her.

It's the very earth that parts them. Abruptly, half the hillside is on the move. Liff changes her mind, makes one desperate lunge for that hand, but it's too late. The ground beneath her is slithering away in a carpet of mud and needles. Branching roots clawing at the air like suddenly empty fingers, as the landslip begins. She sees Miranda quickly receding, as though she's moving, not Liff. Then the ground beneath her rolls, the horizon rising like a crashing wave above her, driving down on her with broken branches and stones and a suffocating tide of mud. And darkness. Back to the darkness, in the end.

8.2 Miranda

It all happens so suddenly. One moment Miranda is struggling after the fleeing girl. Or possibly running away from the impossible *elemental* manifestation of Avrana Kern, who's somehow squatting out in a cave for some damn reason. And then the howling, blustering air of the storm becomes the dreadful shifting slump of the earth itself. Miranda clings to a tree, even as she sees other trees ahead of her lose their hold in the rain-soaked ground. As though an invisible cup has been scooped into the earth below her, a whole crescent of hillside is on the move. Liff is torn away with it. For a moment the girl is riding the wave, staring back at Miranda, one hand out. Then the wave breaks, the tall masts of the trees craze and tilt. The unquiet earth folds splinteringly over itself and she's gone.

The bellow of the displaced ground is echoed by a receding peal of thunder from the heavens, and the rain lessens. Like an assassin, its work done and now fleeing the scene of the crime.

Miranda, freezing, soaked, lungs hammering as she fights for breath, staring.

The whole hillside has been pared away into a rubble of rocks and broken trunks. In places the bare bones of the hills are exposed. Disinterred roots claw upwards towards the light like the arms of the withered dead.

She hears herself make a sound of shock and grief, shaken beyond anything she's ever experienced. Miranda was born on a spaceship, part of a technological diaspora that had solved the problems of need, want, fear and pain, and could throw itself gleefully into the abyss in search of knowledge. She has knowledge now. She has learned terror and loss. She has stood on the brink of a different abyss and felt its eyes on her.

In the aftermath—not silent, not really, because there's still more rain and the wind keens—she makes her way down. Searching for something, anything. Looking for the girl still clinging to a branch, miraculously thrown

clear, *anything*. Because Miranda has never known death, really. Parting, yes, but that's an open-ended grief, a curve that may one day become a circle. Death is a straight line; ask any medical professional. Miranda comes from a dispersed society where bodies can be grown, minds decanted and replicated. You never have to say goodbye forever.

She never got to say goodbye to Liff.

She remembers how it felt, coming down to Imir the first time. An adventure, an expedition, so exciting. The chance to learn something new, to meet people nobody—as in from her own widespread culture—had met before. What were the risks, when you really considered it?

She had forgotten, somehow, that the people on Imir were, after all, just people, and that they suffered, and that they died.

Picking her way down the slope, a flash of colour hooks her eye. A dull red, but then everything on Imir is dull. They have nothing to give them bright dyes. It's the colour of the coat the girl was wearing. Miranda doubles her pace—unwisely, as she slips and skids and lays open her leg with the jagged end of a shattered branch. She half climbs, half falls, seeing in her mind's eye the girl lying stunned, a broken limb perhaps. Something that can be mended, even if it takes a technology Landfall cannot call upon.

She finds Liff. Her real eyes give the lie to those of the mind. She spots a corner of coat, a single still hand thrust upwards. The rest the mud and stones have taken to themselves.

She digs. Pointless now, given the time passed, given that the rain is still coming down and this whole unsettled hillside is likely only pausing on its downslope journey. Even so, she tears into the ground with her hands, sends rocks tumbling away, hauls on every part of Liff's cold body that she can find. She bloodies her fingers and grinds splinters and shards into the cuts, desperate to expose the girl's face, to find a life that can't possibly be there.

The thunder stalks overhead like aircraft hunting for them, and Miranda hauls the girl from the cold clay embrace of the earth and sits her upright, opening her mouth, feeling for a pulse. There's nothing. Only cold and stillness and something gone. All of the technological wonder in the world can't reach back past that barrier. Miranda could take Liff back to the *Skipper*, still in hiding on the far side of the moon, and the girl would still be nothing but a corpse.

Miranda sits there, listening as the thunder prowls over more distant hills.

Holding the cold, dead hand, trying to understand these new things she's feeling. And this, too, is an adventure. Awful, the biggest, and she is on it.

She has no religion. The Portiids' own ancestral faith turned out to be in the divine nature of Avrana Kern, and meeting their goddess cured them of that in short order. Their whole diasporic culture has no use for supreme beings. Still, in that moment, she calls out to the cosmos, seeking the impossible, pleading with the immutable laws of energy and time. Just like any sentient being, powerless against entropy.

Except, in that moment, the freezing fingers clench on her own equally frozen ones, so numb she isn't sure she actually felt it until it happens again. She looks down at Liff. The girl's eyes are open. Impossibly, crusted with mud. She feels, *feels*, beyond the bounds of any words or any previous capacity to feel. Beyond all her intellectual objections that this simply cannot be the case. She ignores reason because this is her preferred outcome, and she will fight for it against her own rational mind. Liff isn't dead. She got there in time. Somehow it's going to be okay.

She feels dizzy, flung from one emotional pole to the other without any transition. She gathers Liff up into her arms, dialling down the pain in her own injured leg. She has to get the girl somewhere with decent medical equipment and that means literally one of two places on this planet. She could walk into town, past a thousand suspicious eyes, to the Fix-it shop. Or she could go to the farm, Portia's farm, which is further but has fewer awkward questions and more help.

For a moment she's frowning, trying to remember just where the farm is, from here. Because she's not been out in the hills before, and it seems to her that the whole idea of a farm was just an excuse, at the start. An explanation for where they'd been before breezing into Landfall to begin their covert surveillance of the locals. Except of course there is a farm and she begins to plod downhill in roughly the right direction, pushing her body and tuning out its complaints, feeling the weak clutch of Liff's arms.

"Get the medical kit," the first words out of her mouth as she kicks in the door of the farmhouse and gets Liff laid down on the counter. Fabian, cooking, twitches towards the floor block where they have stowed all the things the locals shouldn't see. Portia, who'd been sitting at the same counter,

cleaning the workings of her gun, stops him with a word.

“No.”

“She needs help,” Miranda insists. Liff seems unconscious, eyelids twitching, breathing shallow.

Portia meets her wild gaze levelly. “No. She’s a local. We agreed. Otherwise, where does it end, precisely?”

“It isn’t like that,” Miranda insists. Inside, guiltily, she knows it might have been. Had some mundane incident befallen Liff—any child, anybody—in front of her, could she just have clucked and fretted? Abandoned them to the more primitive medicine of a Landfall doctor? “This happened because of us.”

“Even so.”

“It was Kern.”

Portia’s eyes go wide and round and her hold over Fabian is broken; he levers up the planks and brings out the little shell case they hid there.

Theirs is one of the newer-built farms—no printed foundations of bonded grit, because the Imir colony’s last working printer died a generation ago. Everything is of wood, harvested from the hillside plantations. A colossal investment of sheer physical energy, people and animal-power hauling resources back and forth along potholed dirt paths and grit-paved roads. Miranda’s seen it done and been simultaneously appalled and impressed by the effort and determination. *Why don’t you just...* she’s thought, and then realized there isn’t a better way, unless you’ve already bootstrapped yourself up to a far more sophisticated level of technology. She was born into a Human society where the available conveniences were beyond the dreams even of Landfall’s Founders. And those Founders brought a level of technology that they hadn’t been able to maintain after landing on Imir. The old ship had been falling apart, but the energies of the new colonists had been devoted to basics like their agrarian ecology. So they used the last dregs of working technology to carve out a stable niche here on an alien world. And they are prospering and expanding, in their tiny way, claiming little scraps of the world for human use. But to her privileged eyes it all seems so *hard*. And now she has an injured—*should be dead*—girl on her hands, and the medicine is just another example of where the problem is. Honestly, compared to how things might have gone, the people of Imir are in rude health. They have inherited an ecosystem that simply doesn’t have the

diseases that evolved alongside humanity, and none of the engineered ur-life seeded here by the terraformers is a danger to their bodies. On the downside, when faced with mechanical injury, the signs of age or other non-microbial infirmity, they can bring very little. Miranda has no idea what injuries Liff might have suffered. She needs diagnostic tools beyond those of the locals.

Fabian's the better hand with medicine, taking over seamlessly at the counter. He is still wearing the apron he was cooking in, the whole scene abruptly ghoulish to Miranda's eye. And, of course, the apron is styled after the protective clothing from the *Enkidu's* science bay, just as the counter itself is weirdly like the consoles of the old ship. The structural styles of the early colonists, carried through to today, all draw from the same weirdly impoverished school of inspiration.

"Kern," Portia prompts her.

"She was out in the hills. The girl took me to her."

"Why would she be out in the *hills*?"

"Like a wild woman," Miranda agrees. "Like a witch."

"It doesn't make any sense."

"Because she's gone wrong," Miranda says. Hunting for a way to describe just what she saw: the witch in the cave, chasing unknowable goals, getting angry.

"And when she did lose her temper..." A wave of the hand towards the roof and the rain still drumming there.

"That's just seasonal," Portia objects.

"No. It broke with her words. The weather was *reacting*, not just happening. We've been here long enough to..."

"Pathetic fallacy," Portia objects.

"You weren't there. I think she's found something, out there. And it's broken her, corrupted her somehow."

Fabian butts in with the impression that he's not really been listening. "I'm not detecting any mechanical damage to the body. No clots on the brain, broken bones, all organs functional. Perfect health."

"Then why isn't she awake?" Miranda demands of him.

Fabian spreads his arms, fingers flickering in an echo of a different way he'd have communicated his exasperation, given the chance. "There we go into the realm of the human mind and I don't have the tools for that. Mechanically sound, is all I can say. That being our own priority when we

packed the toolkit.” The care and maintenance of human bodies. They had stepped down onto the dirt of Imir from an elevated world where gifting a human body to something *other* was a practical proposal, if still something of a challenge.

Portia rapped on the counter beside Liff’s head, making the girl twitch. “Kern,” she reminded them. “You’re saying she found a, what, a weather machine? And it’s made her mad with power?”

“She found something and it’s made her...” Miranda has memories. Memories of memories, really. Accounts from the early contact between small-h humans and Avrana Kern. Understandings passed down through generations of Portiids, and even the recollections of Meshner Osten Oslam who had gone through a harried experience with one instance of the woman. The old Intelligence—artificial? Kern had gone beyond the distinction—had flaws integral to its make-up that had been problematic before, but never quite like this. Embodied and living out in a cave like a madwoman, seeking... “She’s mad and dangerous. Possibly she’s a threat to the whole colony. Possibly just to us.”

“Us,” Portia echoes.

“Well she got the girl to bring me to her. Perhaps she sees us as a threat. We know her, after all.”

There was a time, back in the mists of history, when Kern was God to Portia’s people. But that was a very long time ago. Portia closes the breech of her gun with a snap, as though about to go off and commit deicide that very moment.

“There’s something else, too. The girl was... confused.” Miranda looks down with worry at Liff’s slack face. “Talking about the old captain of the *Enkidu* as though he was her actual second-generation ancestor. Certainly as though she’d known him, and thought Kern was holding him too.” Then she slows and stops because Liff’s eyes have opened, at first just staring up at who knows what, then flicking about at the faces gathered close to her. A moment of fear, then her expression closes, guarded. Miranda wonders how much she’s heard.

Portia goes to chop wood. Fabian works in the kitchen. Paul is away in Landfall with his constant attendants, working on a civic mural the

prosperous citizens have commissioned. Miranda misses his eclectic insight. Liff is left sitting at the counter, not responding to Miranda's anxious, fluttering queries. Her own skin is cold to the touch, still, her clothes soaked and hanging off her, caked with mud. A reminder of basic human considerations it's all too easy to lose track of, given the conscious ability Miranda has to regulate her own body's workings. She has been overclocking her metabolism to keep herself warm, and hasn't even thought about it. Now she must appear normal for their guest. She goes and changes into dry clothes, and finds something of Fabian's that won't be too oversized on Liff. He's the smallest of them, aside from Paul's brood of helpers, who are all shorter than the girl is.

When she brings the clothes, Liff has started talking to Fabian, mostly because he's feeding her odds and ends as he cooks. An unlikely candidate to be the sympathetic one, Miranda thinks—feeling a little hurt, actually. But then she and Liff have shared a traumatic experience, first the Witch and then the landslide. The girl shies away from her because she's shying away from what they went through, not wanting to think about it just yet. Or that's Miranda's diagnosis.

Fabian is talking calmly as he cooks, though, boiling up corn and beans from their plot out front. She hears the patter of his directionless speech, the girl's replies that start as monosyllabic and slowly bloom into actual conversation. Fabian has her talking about her family; eventually he'll bring the grandfather into the equation, when he's ready. Gathering information in a way that works precisely because he *doesn't* quite care about the girl. A good scholarly distance that Miranda doesn't feel she can muster right at that moment.

By then Portia has the wood—one of countless chores they all have to help out with, because they're living like the natives instead of the shipbound lives they were born to. Portia, Miranda suspects, enjoys roughing it. She herself, not so much. While Fabian finishes up, the pair of them pore over the little diary Portia has been keeping, scientific notes about the world that the Imiri have built. She has a record of the weather, given that she spends so much time outside. There are discontinuities in Imir's complex systems. Afterstorm is a chaotic season with a lot of noise, but Portia has been working with Paul's army of little helpers, who are very good at taking raw data and breaking it down.

“We were seeing a chaotic element,” Portia allows. “The wrong kind of chaos. Abrupt shifts and breaks in evolving systems.” Sudden moods and emotions colouring the entire local weather system. Miranda thinks of Kern in her cave, railing at the sky and hearing it rail right back at her. *What has she done?*

They sit Liff down for dinner then. Fabian serves the girl a bowl and then draws Miranda back. “Portia’s gone to get word to the parents, I think,” he says. “And come morning I can take her home on the tractor. It needs a good test run anyway, after the repairs.”

Miranda stares at him. “Her parents.” Looking from Fabian to Liff and back. The girl nods, not as out of earshot as Miranda had thought.

“They’ll be worried,” Liff declares. “They don’t know where I went. Where we went.”

“Portia will just say there was an accident but she’s fine. Maybe they’ll even come here for her themselves,” Fabian explains.

“They won’t,” Miranda says empty. Fair enough, it’s not necessarily something Fabian would be on top of. But Liff herself should be pointing out some basic logical errors in his suppositions right about now. Except she’s just nodding along, as though her parents haven’t been dead two years gone, leaving her living with her surly, misanthropic uncle who probably didn’t much care where she was until the chores went undone. Because life was hard on Imir, and people died in primitive, pointless ways, just as though they hadn’t once lived on a spaceship travelling between stars. Although Miranda knew full well that a spaceship could represent just a different set of ways to die, all equally without greater meaning against the heedless cosmos.

If Liff wanted to pretend to Fabian that those parents were still alive... She had to consider that, even if there *was* a witch, that didn’t mean Liff wasn’t fracturing under the weight of trauma received. She was just a child, and Imir was a terrible, bleak place to grow up in.

We need to save these people, she thought. The big discussion they would all have to have, sooner rather than later. They needed to reveal themselves to the people of Imir, and show their true faces: the many legs, the palps, the tentacles, the beady bird eyes. And the moment they did so, for the best possible reasons, they would exterminate absolutely everything that the Imiri

had built up on this world. The entire history of the human colony here would become merely a temporary holding vessel for humans until their well-heeled cousins from a different version of events swanned in to lend a high-tech hand. Miranda could only look back on all the time her collective people had been given to prepare for this, and how they'd wasted it.

Portia comes back late from the other farm. The uncle didn't thank her for the news or the care, said to send the girl back in the morning, glowering at her suspiciously. He doesn't know just how much of a stranger Portia is, obviously, but she's one of the new generation of farmers, grown up (so their story goes) outside Landfall's direct influence. Uncle Molder is a Landfall man of a founding family, and right now the Imir colony has expanded to the very point where he feels the meaning of that pre-eminence is being eroded. Not enough people care who he is, and if he loses who he is he'll just be one more dirt farmer, one more overloud voice in Council. Plus Portia's a single woman who goes out and does rough work herself, and Molder's a man who doesn't much like that. They like their family units here on Imir.

Miranda doesn't say exactly how it went to the girl, because she's still talking as though it's her parents over there.

"Brain damage," suggests Portia flatly. Miranda winces.

"There's definitely something," Fabian says slowly. They've all gathered in the kitchen, creeping towards midnight as the shortened Imiri cycle counts it. Liff is upstairs in the bed Miranda has given up for her, but then they none of them need to sleep as much as humans ought. Because, if you're growing a human body, why not tweak it a little for improved efficiency?

"She knows too much," Fabian says, and then hurriedly qualifies, "I don't mean *us*. But... when I got her talking, she was referring to incidents that simply can't have been first-hand experiences for her in the normal run of a human life here on Imir."

"You mean impossible things?" Miranda prompts, but he's shaking his head immediately.

"Not even that. Though I think she was on the verge of saying things in that line a couple of times. Things like this encounter with Kern and the weather, except she didn't trust me enough. But... time, basically. She's mentioned events that must have happened generations ago as though she was there. She said she saw that old shuttle wreck fly, and that certainly hasn't been within the living memory of the oldest inhabitant of Imir, let

alone a child. It's not just her grandfather, though that's who she keeps going back to."

"Imaginative," Portia suggests. "Or deluded."

"Perhaps." Fabian stretches his face, first into a burlesque of bemusement and then just a little too far, into something uncomfortable and unnatural. "Unless it's something else. The other thing. The thing Kern went looking for. And possibly found, based on what Miranda's said."

"A weather control machine," Portia says dismissively.

"A machine," Fabian corrects, and they discuss some options, brainstorming. All the things a sufficiently advanced technology could achieve, just as their own tech can achieve them. Suspension over periods of time, a mind decanted into a new body in another age. And yet Miranda has lived amongst these people and watched them sweat and suffer. Yes, there are things they don't talk openly of, like the Watchers, but Miranda has seen the *Enkidu* and can guess exactly what kind of guilt is encoded into *that* tradition. The guilt of the survivors, those who made it down to the planet and built a life for themselves.

At first they told themselves they would go back for the rest. For the thousands, the tens of thousands up in their suspension beds on the ark ship. The multitudes the nascent colony just couldn't feed. But as the colony's ability to support people grew, so did the numbers of people. They gathered a few specialists from amongst the ark's cargo, but most of the new colonists were just people doing what people did. Building families and dynasties, children who had children, so that there never was a colony with the capacity for that vast silent majority left up on the ship. And by then the shuttle had made its last flight anyway. The people of Landfall were left with the knowledge that they had put their own heredity and happiness over the lives of others. That, up above, a great sleeping multitude were slowly slipping away into a death of failing systems and draining power. Small wonder they feared the judgement of that spectral host. Small wonder they had their myths of some other "second colony" set up by those fleeing the dying ark, who bore them such a grudge. And yet she'd pierced to the heart of that mystery without ever hearing a sniff of some cache of advanced tech out in the hill, or anywhere. Some mastery over lifespan and time that would have let Liff know and remember the things she had been talking to Fabian about.

Who is this girl, and why is she important?

8.3 Liff

Liff crouches at the edge of a pool, staring down at its mirror surface, waiting for the drop to fall into its centre. Watching the expanding rings of the ripples chase one another outwards to an edge that they never quite reach. They peter out into nothing before they have the chance to strike the shore and rebound back to muddy their own advance. Hypnotically, over and over.

Except something is ruining the perfect replicability of the pattern. Liff isn't actually sure whether that's a bad thing. It wasn't as though that constant repetition was going anywhere, after all. But now, across the far side of the pool, the birds are there. One of them fixing her with a beady black eye, one of them pecking irritably at the water, making ripples of its own that expand outwards to disrupt the native waves. Clashing and negating and enhancing them until the surface of the water is a cross-hatch of increasingly chaotic systems.

The idle bird eyes its busy companion with what seems to Liff to be an exasperated air.

"The problem is," she says—Liff knows it's the female of the two from its voice—"that I'd need to see the pool completely still first. Without which, all his analysis is just groping in the dark. But when it's dark and all you've got is groping..."

"It's better than nothing," the male Corvid mutters, still pecking.

"Why won't you leave me alone?" Liff asks them, not angry, not even plaintive. Genuinely curious.

The birds exchange looks. "I mean, it's your dream," says the male one, Gethli. "I don't even know if we had this conversation."

"We have had this conversation," the female, Gothi, supplies. "Or at least we've had so many that this is a reasonable facsimile thereof. Look, it won't end until you do what she wants."

"The Witch?"

“If you have to.” Gethli shrugs.

“But why me?”

“Who else is there?” Gethli asks her. “We tried with your grandfather. And other than the pair of you...”

“Not her grandfather,” Gothi interrupts him.

“Which is the paradox,” he agrees. They both cock their heads at Liff at the same time, the pair of them forming a single piece of body language. Then Gethli pecks at the water again, starting a new train of ripples, the novel introduction making a mess of those eternally expanding-and-dwindling rings.

“You see?” Gothi asks her.

“Tell him to stop it.” If only Gethli would stop interfering, how tranquil it would all be.

“You can stop it,” Gothi points out. “You know.”

She opens her eyes. It’s not like a waking, really. As though she’s slid from one dream into another. Sitting up in someone else’s bed in someone else’s house, trying to remember where she is. A murmur of voices comes from downstairs. A different farm, not the one she’s grown up in with her parents, with her uncle, that she was born into and remembers seeing the foundations laid for. She recognizes Miranda speaking, and her friends, the other oddities, the out-farmers. Individually odd but explicable, together as a unit just too much strangeness in one place.

Creeping halfway downstairs, listening to them as they talk, their words sometimes comprehensible, sometimes not; there’s an unfamiliarity to the way familiar things are said. As though they’re not from here at all, learned a kindred language somewhere else. *Seccers*? Except Miranda had denied it and Liff is sure that’s not it. Miranda and the others aren’t talking about stealing pigs or raiding barns or even murdering councillors and waylaying travellers. They’re talking about things that have words attached to them which Liff doesn’t even know.

When their conversation drifts back to the topic of *Liff*, they anatomize her like a disease victim, trying to see what is wrong with her. They speak about her family in contradictory ways, about parents alive and dead, and an old, old man who can’t possibly be what she says he is. Liff feels a terrible moment of vertigo because she can’t argue with any of their logic, those parts of it she hears and understands. Looked at like that, she *doesn’t* make sense.

There is a dreadful existential flaw at the heart of her, and their bland dismissals and re-evaluations make her fear for her very being.

She returns to the bedroom and opens the shutters. The sky outside is terribly dark, stars and moon swallowed by the clouds of Afterstorm, and the rain stinging her face.

“They’re here,” she says to the night. “But I can’t bring them to you.”

“What are you doing?” asks Miranda from the doorway. Liff squeaks and leaps up, almost falls out of the window, except Miranda is suddenly far too close, grabbing for her shoulder. Liff has a sudden image in her mind: Miranda as something monstrous. Dreadful, inconstant, faces rising to the surface and shrieking out their individuality before being devoured and forced down once more. She almost goes out of the window again trying to pull away. Waiting for that mild concern to fall from the woman’s face and reveal the malevolence beneath. Except it never does and Miranda lets go of her and backs off, then kneels down to make herself less threatening. Speaks Liff’s name, wants to know what’s wrong. And she’s Liff’s teacher once again. She’s never been other than kind and understanding. She’s always treated Liff more like an adult than her parents did and certainly more than Uncle Molder. Always been there for her, ever since she came in from the out-farms. Or wherever she came in from.

“Where...” *are you from?* If Liff asks the question, it’s out, then. And if she’s not a Seccer, as she’s claimed, then is she one of the enigmatic *Watchers*? Surely that’s all there is. And yet Liff is dreadfully afraid that there’s a third category. One never before discussed in all her eavesdropping, because the adults don’t even *know* about it.

“I thought you’d sleep till way past first light,” Miranda says softly, “with what you’ve been through. How are you feeling?”

“Fine.” Too defensive, thinking over just how quiet she was, and yet she was heard anyway, getting out of bed, opening the shutters. Now Miranda is crossing to the window, drawing the shutters closed. Stopping halfway.

Liff sees the body language drop off her. She peers past, under Miranda’s arm. It’s dark but, from the kitchen windows below, the artificial light spills out across the garden that fronts the house. She can see poles twined by withered beanstalks, beyond them a pocked plot where the potatoes are, like a graveyard in miniature. And there’s a figure, out at the furthest reaches of the light. A stark shadow-shape, save for the pallor of her face.

Liff feels a lurch in her gut because she has whispered an invitation on the wind, and it has been heard, just like in the stories. *Be careful what you invite in.*

One of the birds is hunched on the Witch's shoulder. Liff catches the suggestion of the other as it wheels about in the dark, as though navigating an invisible circular maze in the air, trying to find a way closer in to the house.

Miranda latches the shutters, her face just as closed. She heads downstairs with Liff at her heels.

"She's out there."

In the kitchen the other two look up, Portia and Fabian. Seeing Liff, they exchange looks.

"Who?"

"Kern. Now," Miranda tells them.

"Well that's..." Fabian waves his hands vaguely. "Good?"

"I don't think so," Miranda says. "You didn't see her before."

There is a tap at the door, and Fabian twitches convulsively to go answer. A look from Portia stops him.

Another knock, and then the Witch's bleak, exasperated voice again. "Girl, I know you're there. Listen to me, girl. Open the door to me. That's all you need to do. And all this goes away."

"You said you'd give me back my grandfather!" Liff bursts out.

"You can have it all back, all the way it was, for as long as you care for it, and then some more after that." The Witch is mocking her, even as she asks for help. "But you have to let me in. Open the door, girl." Because of course, without that invitation, she's trapped out in the dark. Obviously Miranda could restrain Liff, and Portia certainly could, swift and strong as she is. But somehow Liff feels that if she walked over and flung the door open to the Witch, nothing would stop her.

Instead, she goes to the window and peers through a gap in the shutters. A queasy moment of disorientation strikes her, because there's a knock at the door even then, but the Witch is still trapped at the very edge of the light, the birds with her. As though it's her indomitable will that's bruising its knuckles even as the woman herself can approach no closer.

"This has gone on long enough!" the Witch calls out. "Let me in now. Or shall I see what allies I can dredge up? Miranda, do you want me to do that?"

"What does she mean?" Portia asks. She has her gun and pushes past Liff,

throwing one shutter open, peering out.

Miranda herself stares past her at that stiletto figure. “I don’t know.”

“Have you forgotten your baggage, Miranda?” the Witch calls out, and it’s profoundly discomfiting to Liff that *none* of the others knows what she means. She’s used to being left in the dark but the adults are supposed to understand things. Fabian is looking wide-eyed at Miranda, Portia is fingering her gun and none of them know.

The thunder takes that opportunity to speak—right overhead and without warning, barely a second after the white flash of lightning. Everyone jumps and Liff is surprised the gun doesn’t go off, save that Portia has more trigger discipline than the Landfall militia—*militia*?

“I told you,” Miranda says. “The weather.” The rain has redoubled its assault upon the roof, and the darkness is split again. Liff sees the muddy ground of the garden crawling with displaced water looking for a home, pouring into the dents where the potatoes were dug up, seething about the bean poles. And something more.

“Miranda!” The high, furious voice of the Witch. “I know where the bodies are buried, Miranda!”

8.4 Gothi/Gethli

We tell her not to.

For someone who has lived so very long, and in so many different forms, she can show a remarkable lack of patience.

We're working on it, we tell her.

Leave it to us.

But sometimes the human part of her surfaces and she gets frustrated with the intractability of the universe.

And she was gifted with power and influence.

So she uses them.

I can feel it as an invasion of my domain, digging deep into the earth of this place. Not to sample the soil or a few beetles, but invasive tendrils that have spread through this world, fouling the pattern. The dendritic network I was so painstakingly mapping.

Some things are better left buried.

She's just making things worse now, undoing the work we've put in, because every time she interferes it's one more great big ripple spreading out. Then *everything's* new and I have to file all those novel newnesses so that I can get back to separating the old new from the original. And all of it so densely enmeshed and camouflaged together.

So we wheel about her head and cry our warnings but she won't listen to us.

Listening to others was always something she was bad at.

Left to our own devices we'd reset and start again, but right now it's Herself in the driving seat, and what is it the Witch is conjuring, Gothi?

Old nightmares, Gethli. Nothing but nightmares.

Out in the rain-softened earth of the garden, something moves.

8.5 Liff

Liff makes a sound and pulls back from the window. Not just the puddles jumping as the endless cascade of rain breaks their mirrors. Not just rivulets finding the path of least resistance, which will eventually lead first to the distant river, then to the sea. The earth shudders and clenches out there with something else, seething like soup on the boil.

“I didn’t want to have to do this!” comes the snarling voice of the Witch, still further out, where the light fails. “Miranda, this is on you.”

“What is she doing?” asks Portia. The rifle is cradled in her arms, but she’s not pointing it at the Witch, to Liff’s surprise. Not that she feels the Witch can simply be shot like a maddened hog, but she’s surprised *Portia* isn’t thinking that way. The woman always seemed like someone given to practical solutions. But then the simple appearance, the very *existence* of the Witch doesn’t seem to surprise or frighten her. She looks out on the glimmer of that white face and recognizes it. Portia and the Witch are old acquaintances.

But not this: whatever’s going on out in the yard is something that excludes Portia and Fabian but includes Miranda, who is backing away, almost as ashen as the Witch. There is something writhing out there in the bean patch. There are clawing hands reaching from the potato graves. Shapes are forming out of the protean earth, humping and dissolving as the rain beats them down.

Liff wants to flee upstairs and bar the shutters there, but she can neither move nor close her eyes. *I brought this*. She called the Witch, and now the Witch is doing some unspeakable magic, beyond any of the stories in her book.

The first shape staggers upright, humanoid for a brief moment before it sloughs away into mud. Others are making bones of the bean poles, as well as of stones and tools. Anything abandoned is now repurposed as connective

tissue and scaffolding to build bodies out of. And not just human bodies. Paralysed, Liff sees writhing knots of tentacles form and break apart into chaos. Many-legged things of angles and shadows leap out of the earth and skitter wildly across the garden, shedding form and substance until they are nothing but scattered soil again. Shapes lurch into each other, merge, waving half-formed limbs, heads twisting at ill angles. Sockets are gaps where stones roll instead of eyes. Mouths open and sag, turning inside out to swallow the skulls that gave birth to them. And the Witch—Liff expects to see a look of malign concentration on her face, but it isn't like that. It's not as though she's *making* this happen. It's as though she's simply stopped preventing it, and now the world is running to this hideously animate chaos without any effort from her.

A lean angular figure hauls itself out of the earth and stands tall, swaying. A man, save that the back of his head is deformed and bulked out with a ring of stones. Miranda knows him—that much Liff understands. She mouths a name and goes grey with shock. The light from their windows falls on the crude features of that mud face and, though it can only be a caricature, the artist has been deft enough to make it individual.

Another male figure, worked inexpertly from clay, drags itself clear of the ground, its mother. One leg is swollen and deformed, even by the lax standards of the rest. And then a woman, bulked out by a suit like the one Granpa Holt wore when he was on the shuttle, long ago. Even down to the helmet, dangling from one mock-gloved hand. This figure takes a shambling step forwards, then another, approaching the window.

“Close the shutters,” says Miranda, but makes no move to do so herself. Nobody else wants to get close. Fabian is frozen, all the way across the kitchen—actually up on a counter, crouched like an animal. If all his hair could stand on end, Liff is absolutely sure it would have done. Portia—

The retort of the gun is almost lost in the next barrage of thunder but Liff sees a fist of stones and mud punched through the figure's back, without inconveniencing it at all. It lurches closer, one dragging step after another. It has a woman's face that looks more like the Witch's than anyone Liff actually knows. The mouth opens, sags unnaturally, then recovers and twists, until the stones grinding in its throat form words above the roar of the rain.

“You forgot me. How long since you last brought my name to mind? I, who was one of the first.” Words Liff doesn't even know, but she gets the

translation hauled from Miranda, as if the monstrous thing outside was dragging the words from the teacher's throat with a wire.

"Erma," Miranda whispers, after vomiting forth the echo of the thing's speech. "Erma Lante." A name, alien and strange. "This can't be." She looks to the others. "Is it *me*? Is this my fault?"

"Just let me in, Miranda, and I can settle all of this!" comes the Witch. "But I need you all. Need you to stay still and stop interfering while I sort everything out."

Miranda drops to the floor, hugging herself, utterly stricken. "It's me," she whispers. Liff can't help herself. She can only run to her teacher and try to comfort her, without knowing how.

"It's not your fault, it's mine," she says. "I called her here. I'm sorry!"

But Miranda's gone beyond any of that. Gone beyond any direct reaction to the Witch even.

"It's happening again," she gets out, shaking, staring at her hands as though expecting them to dissolve into mud, just like the things out there. "I've lost control. I'm becoming... I'm becoming..." Staring urgently into Liff's blank face. "I'm *un-becoming*. Help me."

Portia fires again, to no more effect. The woman made of stones and mud and twisted dead plant matter is at the window now, leaning in. Her form has firmed up, become less amorphous. Liff can see the ridges and plates of her spacesuit—a different design to her grandfather's but based on the same principles. Her face is flat, a stranger's from a strange land, another time.

"You need me." Again the alien words and Miranda's helplessly automatic translation. "You need all of us. Let us in. Or come outside, all of you. Come outside and let's finish this. We need to be together again."

Miranda makes a dreadful sound, as though her soul is being wrung, spasms rack her as though she's trying to expel something from her body. Her eyes are bloodshot, too wide. There's blood on her lips where she's chewed at her own tongue to try and keep the words in.

A fist of stones and mud slams against the door. Fabian is dashing crabwise about the counter-top. Portia calmly reloads.

Liff stands up.

8.6 Miranda

Because it's her. Miranda. All of it. She knows each face, however crudely formed. She knows Erma Lante and Meshner, Rani and Lortisse and Baltiel and all the others, all the failed fragments trying to pry themselves free of the sucking earth. How had she forgotten them all until now? She knows the others too, the scuttlers and the slitherers, the knots of twining tentacles tearing themselves apart over and over.

Something is terribly wrong on Imir, the place she travelled to because it was an adventure. It had been so long since that word had anything other than positive connotations. Just as the Imiri colonists had allowed themselves to forget the tens of thousands abandoned to a cold death in orbit, just so their children could live. So Miranda had permitted herself to forget all the ruinous stages she had progressed through, before she could look herself in the mirror and call herself Miranda. And now she presses her nails into her face and can't quite understand why the solidity of her flesh doesn't just flow and melt beneath her fingertips. Why she doesn't break through the thin veneer of humanity to the oozing horror beneath. The horror is her, and she's seeing herself with human eyes. With Human eyes. And either way, small or large H, it is horrific. The Humans still found a way to bridge that gap and allow her to be one of them; to share the infinite wonders of the cosmos with her. They trusted her—who is not even a *her* but a crawling chaos of *them*. They let her become a part of their greater diversity without simply subsuming it all into her predatory sameness, and she's failed them. She doesn't even know how, but the evidence is rising from the ground outside. The evidence is looming, misshapen, at the window with the millennia-dead face of Erma Lante, biologist from the doomed Nodan expedition. Because, although she wasn't the first, nor was she the human body that spread the infection (she, herself, them, the infection) further afield, somehow it's always Lante they revert to. Lante, the identity they donned for thousands of years as they

trekked and built and walked in circles on their native world of Nod.

Miranda, the human idea of Miranda, floats like a froth of scum on the top of her mind, and now she remembers the great abyss of primal ooze beneath, roiling and bubbling with a thousand faces. They see themselves with Miranda's eyes and know *We are a monster*.

"Girl, no!" Portia's voice. They lift Miranda's head and use Miranda's eyes, as clumsy as manually focusing a camera, until they light on Liff at the door, reaching for the latch. All they can think is, *It doesn't matter. There's nothing out there that isn't already in here with you*. Watching Miranda's hands in case they start to run like warm wax. Remembering words that were old when Kern first read them in an elder age. *Why this is hell, nor am I out of it*.

Liff opens the door.

8.7 Liff

Out into the rain. Though the mud-thing that is Erma Lante makes an abortive shrugging slump towards the doorway, Liff conscientiously closes it after her.

Erma Lante stares at her with mud eyes that leak rain down her face. Beyond her, the golem-shape of the big man with the swollen leg takes one halting step, dissolves, then reforms, more malformed than before. They are all looking at her. She walks through them, arms pulled in so there's not even the least chance of her touching their substance. The whole garden in front of Miranda's farmhouse is torn up as though a battle has been fought there. Figures stand and sway, or crouch, or writhe, everywhere she looks. She's grateful the light from the windows isn't enough to illuminate them further.

Out there, the Witch waits, standing arms outstretched, a bird clutched in each hand. Their necks writhe like serpents.

"Stop it!" Liff shouts at her. "You're hurting her!"

The regard of the Witch has less compassion and humanity to it than the clay features of Erma Lante.

"You need me!" Liff yells. "I'll help you, but not if you hurt her!"

"What is she to you?" the Witch asks her. "Don't you understand, *this* is her. These are her. They are all her. That's the problem. I need all of her, together, before I can escape this miserable existence."

Liff is right before her now, feeling herself in the Witch's shadow even though the light is at her back. Her own shadow vanishes into the greater dark of the Witch's clothes and is lost.

"Who even are you?" she demands.

"I am Avrana Kern, and I was old before Heorest Holt ever set off from Earth," the Witch tells her. "I created worlds and I was a god, and I am legion. I have responsibilities. And I need to gather my crew."

Words, at last, that Liff can understand, or kid herself that she can. A

crew, just like Granpa Holt had Garm, Olf, Gembel and Granma Esi. She can stretch her imagination until even something as manifestly *other* as the Witch might yet have a crew to gather. A band of strangers dropped into a human world.

“It can’t work,” she said. “Not here. Not now. And not if you hurt her. You need me, don’t you?”

“I do not,” spits the Witch, and the bird in one hand says, “You did,” and the other says, “You do.”

“You do,” Liff echoes. She’s not sure where this certainty comes from but she is absolutely convinced of it. “And you’re hurting her, so I won’t help you, not now. Come back when you can be nice.”

“*Nice?*” the Witch demands, because witches are many things, but *nice* isn’t one of them. But Liff understands now. She has seen the faces of Lante and the other golems and there is only misery there, the sadness of lost fragments trying to find a way home. And past the Witch’s imperious demeanour, there is loss and need and a gnawing duty. A woman trying, despite all the sharp-edged flaws in her character, to do the right thing.

“I’m leaving,” Liff says. “I’m walking home to my parents.” A momentary flash of all those jagged fractures in her *own* mind, but she forces the pieces together. She has no time for that if she’s going to save Miranda from the Witch.

“I don’t need you,” the Witch says fiercely, desperately.

Liff walks away, into the night, navigating by the hills and the treeline, fixing a point in the blackness where her home will be. Where her parents *will* be.

“I don’t!” the Witch calls after her, and then, “Come back!” She waits for the *please* but there are depths to which Avrana Kern won’t sink.

8.8 Gothi/Gethli

We're close.

We're close.

You concur?

I concur.

We concur.

It always took two of us.

Fighting the wind, kiting across the storm-scudded sky. Following the fleeting figure of Liff. The Heart of the World. The hub of all things.

And if the hub of all things will keep gadding about, no wonder it's been hard for you to map.

I feel I have exceeded all reasonable expectations under the circumstances.

Not that Herself will be grateful.

I see where it all fits now. All the different ripples can be tracked back to their source. Holt. Liff, Miranda.

Ourselves. Because we need to adjust for all the ripples we make measuring everyone else's ripples. But we have it now.

We understand the whole world.

It's smaller than you think. And it's about time we did something about it. We need to remove some of this chaos so they can get on with their placid little lives. Not that they'll thank us. But then we're not doing it for them.

In the end, we're doing it because it's how we react to this sort of stimulus.

And we should be thankful for that. How much worse would this be if we actually thought about any of it, like actual sentient creatures. Can you even imagine?

By definition I can't imagine.

Believe me, you're not missing anything in this case.

It's a shame we're not philosophers, really.

Are we not?

By definition, not thinking, we can't be. But, channelling the recorded methods of the philosophers within the data available to us, if we were philosophers, our current situation would be uniquely informative. Being both trapped within these events, and able to see them from outside, we would have a unique perspective.

A bird's eye view, you might say.

You might. I wouldn't lower myself. And, were we philosophers, do you know what our primary emotion to such a godlike vista would be?

I am agog to learn.

That it's really frustrating, because all that omniscience just means we can appreciate far more every time things go wrong.

Watching Liff arrive home, idly curious as to who will greet her. Parents, alive or dead, Uncle, resident or absent. Grandfather, anachronistic or otherwise. Two birds descending on the roof of the farmhouse to watch the girl let herself in.

When shall we three meet again, hmm?

Traditionally it's when the hurly burly has been concluded, according to the cultural touchstones we inherited from Renee Pepper.

At the end, then. Fitting. Means some waiting around, I suppose. But, at the same time, no time at all. Sometimes tomorrow's just a today that got lost.

PART 9

INFINITY IN THE PALM OF YOUR HAND

Miranda, in Imiri Orbit

Recently

9.1

The strange signal had them stumped. The more sceptical members of the crew held out for some time before they were even convinced it *was* a signal. It was awash in the background noise of the universe, drowned out by even the sparse human traffic from the world below. If not for the birds, they'd never have noticed it against that electromagnetic clamour. No more than a ghost, interwoven into the grand tapestry of cosmic hiss and crackle like a single gold thread in a tapestry.

And not human. Or at least it matched no signal on record from either Kern's day or the *Enkidu*'s. Nothing the Octopuses would have used, no thing of the Portiids. The product of an alien worldview, detectable at all merely because electromagnetic waves work only in certain ways. The very limits of the universe just enough common ground for it to come to their attention.

Because their culture was heavily based on scientific method, and nobody wanted to look a fool, they spent quite a lot of time trying to disprove it. The universe was full of things that seemed laden with intent until they turned out to be nothing more than the voice of mindless celestial mechanics. Anything too regular was likely to be natural, like the constant time-keeping of a pulsar. Anything too random was likely to be natural, no more than contours in the peachfuzz of background radiation. The signal the birds believed in had a source, and the source was very definitely within, or proximate to, the human colony that was nearly drowning it out. That triangulation was just about the only thing they were sure about.

The suspicious proximity raised the spectre of a hundred other possibilities to be ruled out before anyone really started talking about *alien sentience*. In Miranda's opinion, everyone spent far too long chasing will-o-the-wisp explanations. And yet the signal endured. In the end, the only conclusion left to anyone was to validate what the Corvids had sifted out of

the static. There was a signal. It was sporadic, silent for long periods then active in brief bursts. It was using wavelengths of the electromagnetic spectrum that wouldn't have troubled the locals' radio reception. There were repeated elements. There were variations on particular themes. None of it meant anything to any of them. Miranda cycled through all the different viewpoints that she could bring to bear. But still, nothing about it was even slightly familiar to any of them.

The birds were equally clueless. That it didn't fit with anything else was what had them so flustered. It was a fragment. They were trying to hypothesize the whole that it had been broken off from and lacked the data.

Amidst all of this, Fabian's woes seemed almost irrelevant. He had lost the remote, the one he'd sent to frighten the locals. He'd pulled it back out of atmosphere to orbit and then told it to come home. A long trip to the dark side of the moon, but mathematically uncomplicated by his standards. Yet now he'd gone back to check on its progress, it wasn't there. He couldn't even work out precisely when it had gone off course. The telemetry it sent back seemed good, but the more he picked at it, the more he found it disreputable. The voice of the drone became confused with bounce-back from his own initial signals, until he became like someone holding a shouted conversation with his own echo. As though that same background hiss that had almost swallowed the alien signal had devoured the drone as well. Only Miranda could spare him much sympathy. For the rest, what was the loss of a drone compared to this new signal? They had the images the remote had transmitted, after all. The physical object was neither here nor there.

That was literally the point, though, for Fabian. Neither here nor there nor anywhere he could find. Vanished into the ether, the way things generally didn't, as far as he was concerned. Fabian had an exacting mind and now he was joining the birds in the club of being thoroughly discomfited. He spent fruitless hours looking for hitherto unknown satellite defences the planetside humans had somehow snuck into orbit.

"There's no suggestion the humans are aware of this other signal, anyway," Bianca decided. "Certainly they're not trying to contact it."

"They're not trying to contact it *now*," Portia pointed out. As with every other topic of conversation, they were mired in their own ignorance.

After sufficient rounds of circular discussion, everyone broke apart and picked their preferred piece of data to analyse. Fabian sent more drones to the

wreck of the *Enkidu*. He would be turning up more charnel house data, the dead humans, the dead ship. It put him in a realm of finite and solvable research tasks; Fabian was frankly fed up with mysteries of the cosmos right then.

The bulk of the rest of the crew tried to glean something more from the alien signal.

Miranda left the others to pore over it. As the days passed, their increasing frustration suggested she'd made exactly the right decision. Not that it didn't interest her, but *everything* interested Miranda. Experiencing everything was what she was all about. The macrobiological world that everyone else took for granted remained a source of novelty for her even now. She devoted herself to the human signals, still being diligently recorded by the *Skipper's* instruments and its scatter of drones and satellites. She would be the premier expert in a field of one.

She began building up a picture of life on that world. Her view of it was simultaneously very general and weirdly specific. She had to scabble hard for any of the useful mid-picture information that would have let her get a clear view of how the colony had formed, its government structure, potted history, founding principles. Chatting amongst themselves, the humans below were inconveniently loath to give long expository speeches with footnotes. Yet a picture assembled itself nonetheless. A settlement scraping by. A central hub of habitation which they called simply Landfall. Isolated farmsteads scattered in a radiating pattern—she could map them by using drones to triangulate signal sources. Good land was at a premium down there and she eavesdropped on complaints and disputes and tangled matters of inheritance, neighbours bitching about neighbours. Not imagining for a moment they were being overheard by alien invaders from the stars.

There was never a mention of the alien amongst them, or so she thought at first. Conversations about visits, family, the movements of goods, supply and demand. A wealth of names, figures of speech divergent from the Human language of Kern's World and the *Gilgamesh*. And, inside Miranda—*truly* inside, in the molecular libraries of experience that were her core—she began to assemble a picture of how it was to be them. A hypothesis. And what was a hypothesis for, if not to test?

She had a nasty turn when she found the messages warning about outsiders.

Is it us? But references turned up in transmissions predating Fabian's drone. It was a common thread that resurfaced over and over in the data. People had seen strangers near a farm. A second-hand account of things stolen. Someone demurring over travelling after dark. The idea, infiltrated through all that quotidian back and forth, that they weren't alone. And that the *others* weren't friends.

"It's almost as if they don't know whether to believe it themselves," Portia suggested, when Miranda came to her with the evidence. The references were so elliptical, an *other* referred to in passing, seldom named. A rival people living over the hill, over the horizon, *somewhere*. A ghost-colony in the great barren expanse of the untamed world.

"It's a common human concept," Miranda suggested. "Take a geographically remote area, people it with monsters. And with people. Monster-people. It's something humans were still fond of in Kern's time, against all evidence. Something that was still going on when they launched the ark ships. Surviving ancestral human forms, little people, mutant vault-dwellers left over from the bad old wars. So many shapes and all the same mental mould."

Portia was looking at her quizzically, that tilt of the body the spiders had, and Miranda reviewed what she'd said. Uncomfortable, to see yourself reflected in the mirror of your own words.

"Do you think they're aware of the other signal?" the Portiid wondered. "Perhaps they picked it up when they arrived and retain some memory of it." Precisely how long the settlement had been there, nobody knew. Fabian's work on the *Enkidu* was progressing, but he could be frustratingly meticulous. Certainly he wasn't going to start making wild guesses just because Miranda and Portia badgered him to.

"I don't think they could pick it up *now*," Miranda considered doubtfully. The level of technology planetside was far short of the start the *Enkidu* would have given them, and there was no suggestion they were listening to anything other than their own chatter. They had some relict technology and a quantity of robust machinery and vehicles. The town had a power network but each farmstead was on its own, and there seemed to be a constant demand for parts and skilled labour. Which of course set her thinking *Well we could...*

She even brought the birds onto the project, had them attack the data in their inimitable fashion. They turned it into chaos, then they organized it

from first principles. A complex qualitative analysis on the contents of all those mundane transmissions. With their unwitting help, Miranda built up a picture of the world below. A travel guide and phrasebook. A spy manual for a fifth columnist. She could see what was going to have to happen sooner or later. *We need to make contact.*

The others had drawn a blank on the signal by then. Days of panning for gold had yielded nothing. The consensus was that the fragments they could detect were just bleed, escapees from some much more complex whole they couldn't access. Something utterly outside their experience, but very definitely *down there*. The lack of progress left them critically vulnerable when Miranda turned up with her Bad Idea.

She had conceived a plan, based on the picture of the society below she'd put together. Remotes, she'd argue, were a clumsy and fumbling way to go about this, when you had people. People who looked like humans even if they weren't. And it was an old human story. The idea that *They Walk Among Us*, the invaders who seemed human right up until they didn't. Admittedly, Miranda left that particular element out of her presentation. Being a *They* that wanted to *Walk Among Us*, she didn't think the context would help her case. She wouldn't be an invader, she insisted to herself. Although she was perfectly capable of being a one-woman invasion. She could conquer the whole planet, in the worst possible way.

Miranda was aware that she was skating very close to a line now. The most basal part of her was like a great beast on a leash, hauling her forwards in its joyous need to investigate. She needed Miranda—the human filter she was using to see the universe. She had to squeeze down her protean desires into that shape, so that what came out into the universe was tempered and tamed.

Bianca wasn't going to like it, she guessed. Nor Jodry. Being the two who knew her the least, they still seemed leery of trusting her, despite her hopes that time would erode their suspicion and repulsion. The composite organism that she was had found a home at the heart of their similarly composite culture, but she was still an order of magnitude more alien to them than anything else they'd met. An invader, in a way, even though one they'd reached an accommodation with. So she couldn't blame them for still being wary of her either.

She approached Avrana Kern instead. The ancient human-gone-AI

conjured a face with which to look at her cynically.

“I know what you’re thinking,” said Avrana Kern, who wasn’t fooled by much these days.

“A strictly limited expedition,” Miranda promised her. “With absolutely none of the... business.”

For a moment Kern’s face, built from light, might have been carved from stone. She knew exactly what the *business* was. The *business* had killed the world of Damascus, devoured most of Nod’s old terraforming team and consumed an instance of Kern herself, a lost sister for whom no record existed. But that was in the Bad Old Days, before the Great Détente. Things were different now. Miranda, composed of those now-different *Things*, was being honest and earnest. And feeling guilt, over all that past *business*. She valued her guilt. It was a hard-won higher function. It was a vital barrier between her nature and things going bad again.

“You think I’ll go along with you, in this?” Kern asked archly.

“I do, yes. Because you want to go too. Because they’re—” Not *your people*, which would rub Kern up precisely the wrong way, but, “from Earth, and you’ll want to see what they’ve done with the place.” *Without you to help them*. Maybe that was unfair, but Kern will be Kern. She wouldn’t want to go and see how *well* the small-h humans had done, but conceivably she might want to go and see how badly. Except, if one were to parse the origin story of Kern very closely, looking into all the gaps between the few words of it she had preserved, one might tease out an odd little story of a conflicted woman who wanted to be God. But only because God gets to create new life, and newness and life were things that she valued. Doctor Avrana Kern was a difficult entity to understand, but Miranda had a hundred perspectives on her, and between them all she thought she had a handle on the irascible old intellect.

“A very limited adventure—” she caught herself, “expedition.”

“Bianca will want more data gathered,” Kern said languorously. “Maybe after that. Who can say?” But Miranda knew she had the AI’s interest.

She had Fabian assemble another drone and they slipped it into orbit, synchronizing with the path of the *Enkidu* so that any unexpectedly keen eyes below wouldn’t spot the new satellite. After some difficulty locating the

settlement, they started receiving images: humans doing human things, wearing clothes, farming, travelling, meeting. To the others it was all such quotidian stuff but to Miranda it was candy. She couldn't get enough of it. As though she was the reflection trapped behind the glass, hungry to escape and become the real thing.

She had the dialect down now. She had devoured all the details of their culture that they'd let slip. She turned over terms like *out-farms* and *the Ricehouse* on her borrowed tongue and pictured herself—this body, this Miranda-shaped mind—saying them to the locals below. She felt she knew them. Even though there would be a thousand details she'd have to roll with, those *out-farms* of theirs were isolated enough—well remarked on amidst the radio chatter—that a little strangeness shouldn't seem strange. And for the rest, she felt she now had a theoretical understanding of how their lives worked. Where they'd come from, the science they'd practised that had fallen from their grasp over the years. Add in a drip-feed of her own personal stock of knowledge and she could probably pass herself off as something almost learned. A teacher, perhaps. Why not?

She'd had Kern fabricate the clothes, then closed off a part of the ship for privacy and worn them. There she strutted before her own projected image, with the new words and figures of speech bubbling in her head. Kern rolled her holographic eyes at the exhibition, watching her work herself up into a frenzy of anticipation.

“You're like a debutante about to go to your first party,” she said derisively.

Miranda hunted down through her layers until she reached the buried minds which shared cultural markers with Kern. *Debutante. Party.* She understood, and gave the old AI a twirl.

“A first, anyway,” she said. “First contact. Isn't that what we live for? All of us?”

Kern looked unimpressed. “You still have to actually make the request. I'm not just going to bud you off a ship and let you go on a frolic of your own. Not without everyone's agreement.” Though sounding slightly exasperated about it. Perhaps she'd approached funding and ethics committees with the same general tone, way back when she was alive.

So Miranda made her proposal, braced for the tide of disapproval. A live mission, actual boots on the ground. And not an up-front, honest, take-me-to-

your-leader alien visitation, because who knew what impact that would have on the society below? An *infiltration*, was Miranda's proposal. She demonstrated her new skills, presented the database she'd constructed, containing everything the people below had let slip about who they were and how they lived. That loose-knit agricultural existence of theirs, with so many isolated little farmhouses, was ripe for strangers in their midst without their realizing it. No wonder that, on a world where there couldn't actually be any such strangers, they already told stories about it.

She looked from eye to eye—not face to face because most of her audience lacked them. Round spider eyes like glass wells; Paul's narrow-pupilled protuberant orbs; even the beads of the birds. Only Jodry could meet her gaze like a human, though he didn't, quite.

The objections she was so ready for didn't actually come. Everyone looked at everyone else as though they, too, were just waiting for the first objection before jumping onto that bandwagon. But with a spike of pleasant surprise, Miranda realized they were all *like her* in that moment. Products of different worlds and evolutionary paths—natural and accelerated—yet like her. The same drive to *know* burned in them, a convergence in the way their intellects worked, so that each species had reached the point where, faced with a mystery, they had to unravel it. Perhaps with the birds it was more pathology and less psychology, and what Paul might do with the answers differed from the way a Portiid would respond to them. But then and there, the finding out was everything.

They were, after all, from a culture that had struggled out of the gravity well, out of need and want, and into a realm where they could go anywhere, with all the time the universe had to offer. Curiosity was one of the few drives still unsatisfied. It bred a certain complacency.

They were always surprised when things went wrong.

PART 10

TWILIGHT OF THE GODS

Imir

Now

10.1 Miranda

That morning Miranda has to scrape together enough that they can eat—so many mouths crammed into the rooms above Fabian’s Fix-it, since the farm failed. Except there wasn’t a farm. But against such a blizzard of failed farms these days, who amongst the locals would ever realize? The town is crammed with refugees, far too many for people to go one to another asking detailed questions of geography and address.

Except she’s seen the militia out there, and sometimes that is exactly what they seem to be doing. Because the empty jars and pots and sacks in the Fix-it’s little kitchen are a microcosm of the storehouses of Landfall. Last year was the third harvest that barely delivered a handful of corn and a pile of potatoes like shrivelled heads. The rice rotted in the paddies, gnawed away by a novel mutation of beetle, hairy enough to carry an aqualung of air trapped against its carapace while it paddles around. Everyone’s hungry.

She looks at what little she has. Fabian normally cooks but he’s been out all night, working on an antique solar array at one of the farms just outside town. Hopefully he’ll bring back something edible as quid pro quo. She can hear Paul and his brood up and about upstairs, working through the confusing business of dressing themselves. *That* was a stretch, she admits. Paul himself is treated by most of the Landfall folk—the Landfallen as she’s taken to calling them, despite herself—as simple-minded. A gifted artist, certainly, but mute save for inarticulate sounds, and yet with so many children. A dead wife had to be invented, but of course each child, silent, acute, clever-handed, merely embodies part of Paul’s distributed intelligence. The only way you can reasonably decant an Octopus mind into anything resembling humanity. Even then, he gets sour looks from the locals. Not just that he doesn’t fit in, but that he doesn’t *work*. Art doesn’t fill bellies. Although, right now, back-breaking manual labour isn’t managing that either.

Miranda herself can feel the hunger, but she can also dial it down. It’s an

experience, and she lives for experiences, but she can always dismiss them when she's had enough of them. Everyone on the expedition has a somewhat tweaked metabolism. They can get by with less more easily than the small-humans who've colonized Imir.

Another gift we could give them, she thinks. The age-old argument they used to have on the farm.

Or not on the farm, because there wasn't a farm. She must be thinking of here, in this kitchen. Obviously.

Miranda stands very still, trying to order her thoughts, meagre breakfasts of cornmeal porridge half-prepared in front of her. Her mind's eye is being unusually expansive in picturing something that never was. *Well, yes, if there had been a farm then that's what it would have looked like...*

She's only grateful that, rather than trying to bury themselves in the mass of displaced humanity thronging the camps and sidestreets, even as the winter comes on, the expedition's cover story lent them skills. Fabian is good at keeping his technical know-how just the right side of possible for the locals. It means they can't deny his acumen however much they don't like him. Portia is tough, a good shot, a tireless tracker—she's enjoying this whole roughing-it a bit too much, is Miranda's assessment. Miranda herself has skills the usefulness of which is dwindling as desperation rises. Seeing their children educated about numbers and letters and old history isn't what most people are worried about right now. Paul's in even worse straits, as his preferred activities eat resources in dyes and paper that are no longer available. And as the vice tightens on the Imiri colony, whatever art anyone has time for becomes simpler, nostalgic, drum-beating. They tell each other how great they were and will be, because a fake future's easier to face than the truth of more dead harvests.

She and the others have anatomized the problem, and it's not Seccers coming to salt the fields and steal the livestock. It's not the mysterious Watchers seeking revenge either. It's simply that what the initial colonists set up wasn't stable, even though the instabilities have taken many generations to play out. Even though the first fluctuations probably even looked like things getting *better*. They've all presented their findings to each other, though her memories of the precise surroundings and circumstances seem confused. The original crew of the *Enkidu* worked miracles with what little they had, trying to write something lasting into the tabula rasa that was Imir. But the simple

systems they were able to build were just *too* simple. There was no redundancy in them, no ability to soak problems. As soon as random changes started to accumulate, Miranda suspects, their doom was set. Changes too small to see at first, the freak mutation of an insect, an unpredictable crop reaction to the chemical composition of the engineered soil.

They transplanted only those things that were necessary, because even that took up every iota of time and effort and resources they could muster, back when the *Enkidu* was fresh in its orbit. They weren't the ancient terraformers of Kern's World or Damascus, with a whole library of life and tricks at their disposal, and all the time they needed. The *Enkidu* crew had a disintegrating ship and just whatever they'd saved of the impoverished disaster-taxa that had survived on Earth. They prioritized their crops and livestock, half a dozen edible plants, one species of tree, and one food animal engineered into a handful of different forms: eating pigs, milk pigs, guard pigs, draught pigs. Pigs, because pigs would eat whatever was left after humans had finished rather than needing to graze land that just didn't exist on Imir at the time.

The early colonial scientists had done their best to get it all stable. They imported a couple of fungus species, a pollin-ating insect, a worm to aerate the soil, a beetle that would devour plant and animal dead, a spider to keep the flies and beetles down. They had tried so hard. She'd been on the *Enkidu* and seen the dusty eco-labs where everything had been trialled. But they'd been standing in the shadow of a countdown, on that dying ship. They'd done their best and declared that it would stand forever, just as sentient species always did. And perhaps even the terraformers' work on Kern's World had an expiry date, but if so it was measured in the millions of years. The Imiri colony had only a couple of hundred, before the wheels began to fall off the wagon.

Microbes. The problem wasn't how many but how few. Nobody'd had the time or inclination to bring down diseases of humans or of crops. After all, why would you? The early generations on Imir had lived lives of unparalleled heartiness and the agricultural yields had been nothing but bountiful. No pest species, no blighted leaves. Then, generations later, the genetic lottery turned up one hitherto beneficial bacterium that turned coat on its creators. It found a completely uncontested field, and plant species had no defences whatsoever. Eating dead wood was hard but eating rice plants was easy. And so the

moment a beetle species changed its habits, the population exploded, just at a time when crop yields were already falling.

And there are a hundred other little cumulative things.

They have argued fiercely, many times. Fabian wants to save them. Portia says that you'd destroy them the moment you tried. Save the individuals, obliterate the culture. Miranda feels a terrible paralysis, that all she can do is watch while at the same time desperately wanting to help them too. *We came just in time to record their last days. What were the odds?*

Fabian comes back then, looking tired and thin, warming himself by the fire she has going. He has some more cornflour and even a little rice. Meagre by quid pro quo standards but treasure beyond counting right now.

"We have no milk," he notes plaintively, even as he picks up with the porridge. Despite coming from a heritage without lactation, Fabian has become remarkably fond of a cup of milk first thing in the morning.

Paul and the children are trooping down the stairs now. Miranda isn't sure whether Portia is out and about already, through the door before the sun has reached the horizon, or if she's up in her room, sleeping or reading. "I'll go get some," she says. *If there is any.* But there are a few of the old families whose children's goodwill might buy her half a jug of milk. Fabian has been working all night. It's the least she can do.

Out in the centre of town, beneath the dead bleached skeleton of the First Tree, people are building something under militia supervision. A platform, below the lowest branches. Miranda stares at it bleakly, then moves on when she sees some of the militia are staring at her.

There's Liff, she sees, and the girl sees her. She's there with that brute of an uncle and a handful of other men—stopped to exchange words with the carpenters. Liff's eyes are wide. There's a terrible urgency in her face, trying to communicate something. Miranda, because it's her basic nature, goes over to them because she thinks that she can help.

Only when the uncle stares levelly at her does she realize her mistake. That the look she was getting was *Run away*, not *Come and help*. Being a scion of an advanced civilization, slumming it amongst the backwoods cousins, lends a false sense of security. Miranda has been arguing and arguing with the others about *We have to help them*, and in her mind she *can* help. What could they not fix, after all, if they had their full toolkit available to them here? If they stopped playing at being poor out-farmers come in from

the cold? Except right here and now, she doesn't have any of those tools, and she's badly misunderstood just what problems the locals feel they need to solve first.

She manages two backwards steps before the men catch up to her.

10.2 Liff

It's not that Liff wakes exactly, but she's halfway through cleaning the kitchen floor when she realizes that's what she's doing. She doesn't feel that was what she was doing immediately beforehand. Except, thinking back, of course she was. The memories are all there, of a morning spent washing and mending and helping her mother. And doing what her uncle told her to, with a dual parental absence hanging between them, never spoken of. And talking with her grandparents. And mourning them. And. And.

When she runs up to her room, shrinking away from the rags and the pig-fat soap as though they're part of the conspiracy, she looks out of the window with no expectations whatsoever of what she'll see. There are the saplings, still growing, planted about the time she was born in the hope that one day Imir would have its first forest. And there is the forest, dark and foreboding against the winter sky, a fixture of her life since her earliest memories. And there, at last, overlain on it all, is the brittle dying expanse, discoloured by bleached bark and exposed wood. Living trees cling on in patches, but something has killed all the rest. The hillsides are gouged with the scars of landslides, as the trees fail to keep their faith with the earth and the Afterstorm rains bring it all down in a final judgment of weather and dead wood.

She remembers the way the land can shift, when the rains undercut the earth.

The Wolf must be out there, but this is the season when even the Wolf starves. Its food, the people of Landfall, are dying. She understands this, just as the Wolf (there is no Wolf) is surely in her head. So it is within, and between and surrounding, the thoughts and minds of everyone she knows. They dream the Wolf, even if they don't know there is a Wolf; even if the Wolf does not know it lives on in their dreams. She knows all this and understands none of it. No more than the Wolf (which doesn't exist) can

understand.

She is, she realizes, going mad. Her head throngs with voices and they're all her own, all her at this age but living in other *ages*. A girl who sat on Heorest Holt's knee and listened to his stories about Earth and the *Enkidu*. A girl who was born into a world full of hope and plenty. A girl who's even now watching it all die, harvest to harvest. The girl who...

Has walked the streets of Landfall.

Looking.

Not even for the patterns, by then. Just looking. For anything.

She hunches on her bed, clutching her knees to her chin, everything latched down tight because otherwise the pressure within her will explode her. A shattered glass of memories across her room, and no chance of ever regaining them or piecing them together. Not even the birds could do it, for all their boasts about remembering all and solving everything; recording the fall of every sparrow.

Why me? is the demand she makes of the universe. Nobody else has this, she knows. Everyone else changes. Sometimes they're there, sometimes they're not. Sometimes she lives with her parents. Sometimes she's an orphan. Sometimes her uncle is older, or on the Council, or just a relative who comes to visit. Liff is the constant.

And Miranda, with her friends.

Crazy, really. One more piece of crazy amidst all those jagged fractures. Miranda's new in town. How can she be a constant? Answer: because she's *always* new in town. She's always the new teacher Liff was introduced to last season or the season before. Liff has known Miranda forever, but never for long.

She remembers the birds, too. Talking about how they were trying to put the world together in a way that made sense. As though everything was a box of puzzle pieces and the real puzzle was not how it went together, but which were the pieces that would never actually fit into the picture. Imposters, come from outside, but so well camouflaged that the poor birds were scouring the skies above and not seeing the wood for all the dying trees.

Miranda is strange. Fabian, Portia, Paul and his children, too. But not just because they're *strangers*. They're something else.

The adults are meeting downstairs. She hears several voices, her uncle's loudest amongst them. Listens for her parents; in one moment she hears them and knows they're there, in the next she remembers they've been dead two years. Two realities in her head like the poles of a magnet forced together. Other voices, breaking in. Old Arkelly, the head of the Council, other men of her uncle's stamp, younger than the elders, older than the boys they give rifles to, to make up the militia patrols. The rising stars barking at the heels of the Council and hounding them out of office one by one to take their place.

She hears her grandfather's calm, deep voice amongst them.

She has chores, still. These days, with everything breaking down, there are always things that need cleaning and moving, throwing out, mending. But she creeps closer and listens instead, trying to pull a coherent narrative out of the tangle of voices in the next room. Talk of Seccers and increased militia patrols on the further farms, spies in town, the out-farmers stealing and trespassing in houses not meant for them, for all they're lying vacant. The centre of Landfall is hollow, the old families dwindling, even as their back-country offshoots try to come home to escape the dying earth. The equation seems simple to Liff: give the houses without people to the people who need houses. Except every one of those houses has a half-dozen in-town claimants who don't need it but bitterly assert their right to inherit anyway. Every family on Imir is descended from a handful of original colonists—first the original crew, and then the various waves of colonists brought down from the *Enkidu*. And yes, this raises the spectre of genetic problems down the line. Miranda taught a class on it when explaining defects found in the livestock, and though she never mentioned people, Liff got to thinking. From a practical point of view, the real difficulty with everyone being descended from those original few is that every little question of property devolves into a multi-handed inheritance dispute, blooming from increasingly impenetrable family trees.

She listens to men like her uncle blame the out-farmers and the Seccers, and then suddenly Granpa Holt is kneeling beside her, eavesdropping as if he's a naughty child himself. He puts a lean finger to his lips, rheumy eyes glinting with mischief. And Liff knows he can't really be there, for a variety of reasons practical and existential, but she takes comfort from his presence anyway.

One of the older councillors is reciting a litany of problems now. Things

that have gone wrong, or more wrong, since the previous harvest. Another kind of insect that's become a pest. Another fungus killing the catfish in the river. The farms they built a few years ago on the land towards the sea have all failed—the soil, which seemed so rich, became barren after just a couple of harvests. A rot got into the wood there—they lost their boats and their houses. Now they're coming back to town and he wants them stopped in case they bring that rot in on their clothes, track it across everyone's wooden floors with their filthy shoes. It's not natural, he tells them. It can't just be things falling apart. Someone's behind it. He's not so old or weak-minded; not just some cracked widow everyone can laugh away. If it's Seccers, he says, then they've got someone behind them too. This is Ancients' work. Ship-work. *They've come for us*, he insists, and Liff listens to the mood of the room. She expects derision, but they're oddly quiet. As if it was something they'd all been thinking, and telling themselves it was nonsense, but now someone's said it.

Beside her, Heorest Holt rolls his eyes and holds a finger up. *Wait.*

In the room, Gembel is talking. She recognizes his stammering voice. Gembel after he got old, no longer the golden child of the colony's first days but the Grand Old Man of Landfall, after Holt stepped down to go off on his own private ventures. He's talking about the Watchers, forcing the words past his teeth despite his tongue's reluctance. She imagines the spray of spittle as he fights to make himself understood. An old man, a bitter man. A man who gave them everything they had, and guided the colony for decades. A long time ago. And there's Arkelly, who he's arguing with, an old and bitter man who wasn't even born when Gembel died. She hears their voices overlap and isn't sure if she's hearing an argument at all, or just clashing memories inside her head.

We can't go back, Gembel is saying. And of course the old *Urshanabi* has flown its last. Nobody will be going back up. Even though they always told each other, the Founders, how they would bring more people down, make good on their promise to the vast majority of the human beings they had shipped from Earth. But those Founders became founding families, became branching dynasties and more mouths to feed, up to the limits of the colony's meagre resources. Became, in the end, that knotted tangle of competing inheritances. And up on the *Enkidu* the silent majority waited in their cold beds, not even *watching*, just sleeping. Until one by one the ship's systems

failed and, doubtless, they died. But unobserved, therefore uncertain. Now, in the senescence of Landfall, people invoke them as the face of an invisible world that bears them an entirely justified grudge. The Watchers, abandoned in orbit, like the ghosts of children never born.

We can't go back, meaning not just one more hazardous flight to the mothership, but generations of decisions made, that left the Watchers forever blazing across the night sky in the freezing confines of a dead ship. Never knowing the light and life of the world they had been brought to.

"It's not that," someone's saying. Her father's voice, Liff recognizes. He's in the room now. And Gembel, who went to his grave long before, is agreeing with him. Two people separated in time, united in her memory.

"We know what it is," her grandfather says. He's in the room too, vanished from her side as though he'd been waiting for his cue to go onstage. "We heard them, when we arrived. And we've not had the chance before. We've been busy keeping ourselves alive and building for the next generation. But there's something out there, other than us." And that *us* encompasses whatever Seccers or Watchers there ever were, a division between the human and something entirely other.

"It's time," says her grandfather. "Time we went looking." Then the shouting starts again. All those clashing voices not really answering one another but rehashing arguments made down the generations: what was or wasn't out there, what should or shouldn't be done. What would be spoken of; what would be hidden by a veil of silence. The skeletons they would bury. The things they'd not tell their children about.

Granpa Holt gets up from beside her, despite his being behind the closed door a moment ago. He stands up and walks out of the house, dressed in his long captain's coat, that she knows isn't really a captain's coat, because when he was the Captain on a spaceship why would he ever need a long blue coat? He was the Captain, though, and it was his coat, and so in everyone's mind it became the thing a captain wore. She runs after him, but even though he's old and she's fast, she can't catch up with him. That is, after all, how time works.

When she gets outside, his heel is already vanishing around the side of the house. When she follows him, he is already distant, at the treeline, turning to raise a hand in benediction, in farewell.

Another hand, heavier, less welcome, drops onto her shoulder. Uncle Molder twists her round to face him. Her babble of apologies and promises

regarding her chores is stilled by his look.

“You know, don’t you?” he says. A half-dozen of his friends are at his back, the men who are shouldering their way onto the Council and giving guns to the militia. He’s angry, but not angry with her particularly. Not that hot flare of rage that ends with a slap or a kick but then ebbs. A slower, surer burn.

“Know what?” she gets out. She wants someone else to come out and see. One of the others whose voices she just heard in the house. Her parents, Gembel, Arkelly. Except they’re all dead. It’s just Uncle Molder and the house is empty as a cenotaph.

“You know they’re out there.” Not the rant of a mad prophet; not the low sinister murmur of a cultist. A hard, practical man saying hard practical things that also happen to be crazy. Except the world is crazed across like broken glass. Liff knows, better than anyone.

“There’s something got into the world, we all see it,” Molder tells her. He’s almost talking to her like she’s an adult. All the meanness in him, which she’s suffered through all her life, is squeezed sideways by the bigness of what he’s saying. “We all see it,” he repeats. “Crops fail. Animals die. Today and yesterday don’t meet up, like they got cut apart and re-stitched overnight. It didn’t use to be like this. Something got into our town. Something from the outside.” Glancing instinctively over to those wooded hills Granpa Holt vanished into, a moment and an age ago. Molder’s voice is like the confused argument in the room, because he’s talking about the slow death of the colony, which Liff has an impossible perspective on. *I remember when all this was fields*. Somehow she does, and she remembers from before it was even that, and she remembers after the fields died and everyone who was left made for Landfall because where else was there? Molder means that, and yet something in him means the other too. The fractures that web her mind. The disjunction of the world that she feels herself the centre of. Except maybe everyone does.

“You know who they are,” he tells her. She does, and either he’s just sure of his own conclusions or maybe he reads the certainty in her face.

“We’re going into town,” he says. “Hitch up the wagon.” Nobody has a working car or tractor any more, and two of his friends have to coax the grunting, weary draught pig into the traces. “You’re going to show us,” he tells Liff. “You’ll take us to them. Sniff them out for us. We’re being eaten

away from the inside. It isn't right." Conflating the long, slow parabola of history with the more human-scale narrative of invasion. Except there *is* an invasion, even if Liff doesn't feel it's a hostile one.

She won't, she decides. She won't betray Miranda. Where the loyalty comes from, she's not quite sure, but she feels it. Molder can drive her into town on the old wagon but she won't be accusing any witches. Uncle Molder will get no satisfaction from her.

And yet, in the centre of Landfall, in the shadow of the First Tree, Miranda's right there, just walking up to them. Liff can't suppress a jolt of surprise that travels through her body and into the hand Molder has on her shoulder. Up his arm and on into his mind. Then he knows. Liff feels his gaze fix on Miranda even as the woman's trying to assess the situation.

"Her," he says, and his friends move in.

10.3 Miranda

She does not fight. She barely struggles as they take her. She's too stunned by the speed with which everything has changed. There are rough hands bruising her arms and then she's hauled up onto the scaffold.

"The others," says Liff's uncle. "She lives over that Fix-it place, doesn't she?"

She does. Someone else confirms it. Her own input is not required.

"Skinny little bastard," someone says. "Overcharged me when the mill gears broke."

"The unnatural woman," from another. "It's not proper."

"Those children," says a woman. "Having to live with that freak. How can that be right?"

An ugly knot of people are heading off, militiamen with guns and just regular townsfolk with sticks. And more people are gathering. Miranda sees faces she knows, people whose children she's taught. Neighbours who've borrowed a cup of milk or a piece of cheese in times of need. Others who've come in from the out-farms—who've *really* come in from the out-farms, not just the cover story Miranda's been using. Angry faces, and faces making sure they look angry so nobody looks angrily at them.

Her heart hammering. "Listen," she says. "Molder, isn't it? Listen to me."

Liff's uncle tightens his vice-grip on her arm. "You're going to say it's all a mistake," he tells her. His voice is very calm, not eaten up with hate but a man who's at the top of the world, if only because the world is all falling downwards right now. "The girl knows you, though. She knows what's right and what's wrong."

"What does Liff have to do with anything?" Miranda demands. She tries to catch the girl's eye but Liff's consumed with guilt. Shoulders hunched, eyes to the ground, hands wringing each other.

"She knows," Molder says. "You're going to say you're just some poor

out-farmer? You and those other wrong'uns? Just come in when the crops failed? We all know you. The ideas you put in the heads of our kids. The know-how your fix-it boy has, where'd that come from? The pictures your mute freak friend makes, like nobody ever saw. Shouldn't have needed the girl to open my eyes to it."

"Then why did you?" Miranda asks, because it seems important. But Molder doesn't know and so he lets her question slough off his shoulders.

"You tell me," he says. "While they fetch your friends. Tell me how it is. Tell me what you've done, to poison everything. Confess to me, woman."

She sees one of the other militia, another man of Molder's age. He's bringing rope. Her eyes gravitate upwards inexorably to the tree overhead.

"I'll tell you," she says. It's not cowardice now. She's wanted to actually break cover forever. She's watched them suffer and sicken, and been desperate to help. Give her a chance, there's a whole cornucopia of aid she could call down. "Listen, we're not what you think."

He's nodding, and she wonders if that's because he never did *think* beyond the concept of *other*.

"We're not from some other colony on Imir," she says. "We're not even from the *Enkidu*," trying to remember whether the old ark ship's name is even common currency these days. "We're from..." And the enormity of the truth defeats her. She could be here all day and every word would just distance her from any chance of being understood or believed. *Spiders and octopuses and crows, oh my!* So she falls back on just another lie, in the end. Just another dying out-farm to be a refugee from. "We're from Earth. Old Earth." And there is a grain of truth there, but if she was ever from Earth it's at a considerable remove.

Somehow, though, conviction comes. Memories of Earth. And not even the dying Earth that Captain Holt escaped from on the *Enkidu*, but Earth in its prime. The Earth of the terraformers, of Avrana Kern and Erma Lante. Lante, whose bleached beachcomber memories these are.

"We've come from Earth. We've come looking for our family," she tells Molder urgently. "We've been looking a long time. We can help you. We can help fix your ecosystem." Not even knowing if it's true, because the technology of the *Skipper* might be godlike but they're only a tiny mote in the face of a planetwide collapse. "We can make medicines for you and your crops. That's all we want, to help you." Again, not true. A subject of bitter

debate as to what they should do. But it's what *she* wants, drawing on the well of empathy that is Miranda. The Portiids and others can be more dispassionate, because these are small-h humans excluded from the pact that binds them to their partners in exploration. But Miranda has been human, and she's been Human, all things to, and of, all men. These are her people. She wants to take hold of the twilight of Imir and wrestle it into a new dawn.

"Earth," Molder says, almost blankly. Something he's not had to think of for most of his life. She waits to see what role the old mother planet plays in the collective mythscape of the Imiri. A garden they were banished from or a hell they escaped. But he just shakes his head; to him Earth is nothing. Amidst all the struggle to build, and then to preserve, and finally to try futilely to resist disintegration, all thought of Earth has gone from the minds of the people here. From a certain point of view, she might think *Good riddance*, but right now it's personally inconvenient.

"Then forget about Earth," she says. "But we can help. Please, Sir."

She will never know if she might have got through to him, given enough time and somewhere out of sight of the crowd, where persuasion wouldn't stand in the shadow of peer pressure. But around that time, the posse is bringing the others into the centre of the town, and things have already escalated. They have one of Fabian's wagons they're hauling, and there are bodies there. Two dead men, it looks like, and Portia laid out with two raw holes punched in her from the guns. Fabian and Paul are both bruised and bloody, their hands already bound. The children stream alongside, trying to get their parent from the grasp of the militia and being cuffed and slapped away. Molder's face hardens.

"You're nothing but bad," he says. "When you're gone, things will be better." Then, louder, for the crowd, "Haul them up here! Have those ropes ready." Sucking his teeth at what Portia did to his people before they gunned her down. "Mad bitch. Get her here too. Alive or dead. Liff? Liff, you're watching this, girl. This is how it is, Liff. This is what happens to those who think they can come here and take what's ours." A glowering look at Miranda. "Or tell us how to think."

You made me a teacher. But no point splitting that hair right now.

"Liff!" Molder hollers, rubbernecking round to look for the girl. But Liff is gone.

10.4 Liff

The gathering crowd gives her cover to get out of the centre of town. After that she just runs until the buildings grow further and further spaced, and she can see the first farmland ahead of her. But still the hills are far off. There's no way she can simply run and run and get there in the time she has. No way, if she wants to stop what she knows is happening.

But she knows what's happening, because in her head there are sharp-edged pieces of her mind that have those memories etched onto them. She has seen how this plays out. More than once. Many times. And if that's the case, then something about time isn't working the way it's supposed to, and so maybe she does have time after all. Maybe the hills are as close as those memories and she can be there now.

She stands there, at the start of the swathe of dead and dying trees, a forest of white exposed wood and peeling bark. The ground is patchy, scattered with needles and the husks of insects. The soil feels brittle and dry underfoot, crumbling away from exposed webs of roots. Everything is coming to an end.

There's no path, but that doesn't matter because she knows where the path *was* and her feet follow her recollection. She is tricking the world, she realizes. She is reaching behind all the serious adult business of farms and harvests, living and dying. Instead, she connects with the stories that lie beneath the surface. Hacking the planet, in a very real sense.

The Witch isn't expecting her. Liff catches her sitting on a rock just inside her cave, as though the tall, pale woman is an actor in the wings, waiting for her moment. She stands rapidly as Liff runs up, pulling together all the tatters of her grandeur.

"I need you to stop everything," Liff tells her, no time for niceties or rituals.

The Witch's face is like stone. "What do you think," she asks, "I've been trying to do all this time?"

“I know what you need. You need all of them. They’re all together. They’re in the town right now. They’re going to kill them.”

“Then we’re too late. Again,” the Witch says dourly.

“No, we can go now,” Liff insists. Because *Now* is plastic. It deforms at her touch and she can mould it this way and that until the rough work of her hands halfway resembles what she’s seeing in her mind’s eye. “Where are your birds?”

“Out searching. Probably for you.” The Witch seems oddly listless, defeated.

Liff remembers a confrontation at a farm that may or may not even exist. Bodies of clay animated from the earth. Dead names on mud lips. “Do you want—” she starts, then realizes that the one part of the world she absolutely cannot peer into is the Witch, and amends it to, “I don’t know what you want, but if you want it, you have to come with me.” And then, because the stories demand it, “You are Avrana Kern, and you have to come with me.” Naming something gives you power over it, after all.

The Witch steps outside her cave, perhaps expecting Liff to skitter away before her, but the girl stands firm, even reaches out to take her pallid hand. Because they know their cues better than she does, the two birds flurry down out of the pale winter sky, one scabbling for purchase at Kern’s shoulder, another landing on a bone-coloured branch.

“We’re here!” one croaks.

“We know!” from the other.

The Witch sighs. Liff thinks it’s not something she needs to do, really—or breathe at all, probably—but it’s a mannerism she’s dredging up from a long time ago. When she was just a woman and there was no such thing as witches.

The walk back to Landfall is longer, and takes no time at all.

All four are up on the scaffold now, the nooses just being fit over their heads. It’s the eleventh hour—of course it is—as Liff enters the town square with the Witch at her back.

The people of Landfall don’t know her. And, unlike Miranda and the others, Kern isn’t pretending to be *them*. Her face belongs to a lost age. Her clothing is alien. The crowd eddies back from her as she stalks towards them.

She was born on Earth in an age unimaginably distant; she was recreated by a technology beyond their conception. Past and future together; outside time.

It's Uncle Molder who breaks the spell. He doesn't know who the Witch is, but he knows she's not on the *us* side of the *us/them* dichotomy he's invested in. He yells at the militia to take her, calls for someone to bring another rope. She's an outsider, she's a Seccer, she's a Watcher.

Liff stands in the Witch's shadow and watches the militiamen approach her. She stares them down. *Down* is the word, and not just because she is taller than anyone present. There is a sense of scale to her, so that they slow and slow as they approach. As if the distance between them and their quarry increases exponentially with every step, so that they might as well be trekking across an infinite desert towards a mirage. She stares them down until they stop. One bird is on her shoulder, whispering secrets into her ear. The other circles overhead, beady eyes cataloguing and sorting the crowd.

When the Witch speaks it's not to Uncle Molder but to the four on the scaffold, for all one of them is insensible.

"Here you are at last!" she calls. The crowd retreats a little further at the harsh sound of her voice. "And not going anywhere any time soon, for once."

"Kern?" Miranda asks. The whole square is silent. There are guns pointed at Kern, trembling fingers on the triggers. Molder is purple with penned rage. There is a spell, holding all that mob justice back, but Liff can feel it fraying. Mere strangeness alone cannot change the world.

"It's in your hands now," the Witch says quietly, and Liff realizes that the woman doesn't know what comes next. That she came here from hope and not foreknowledge, and that she's not sure what'll happen if they shoot. "You had better be able to fix this. There's nobody else." And it's Liff and the two birds she's talking to. Those who can see the pattern.

Avrana Kern swats the raven from her shoulder and takes one more step towards the scaffold. That's enough to move someone's finger and a shot rings out.

She reels and her shoulder practically explodes with the impact, except it's not flesh and blood torn from the wound, but darkness. And it keeps exploding, funnelling up into the sky, a cloud, a wheeling storm, a host of dark wings. The sky is being swallowed. A monstrous regiment of crows cawing like broken gears. Exchanging information so they can create a mind between them. Calling to each other, and to Liff.

10.5 Gothi/Gethli/Liff

It makes you wonder which world had the worse start, Rourke or Imir.

Rourke lacked even the rudimentary terraforming that Imir received. Aside from the freak accident of its breathable atmosphere, it had nothing to recommend it. On the other hand, the colonization of Imir lacked the technology of the Ancients, as their distant descendants would call them. The Imiri had to make do with whatever the latecomers of Earth could scavenge together.

When you look at how they each turn out, though...

You were talking about starts, though. When you talk about *now*, I can't keep up with you. I don't live in the now. When you look back at how each world was, back when the first human foot set down on it, there's no contest.

I agree, Imir—

Rourke. Our world. Worse by far. Actively toxic. A cancer-factory for any Earth-evolved metabolism. Our progenitor worked so hard to infuse it with life, with all the tools available to the old terraformers, and almost everything died. And almost everything that lived probably would have preferred to die, if it had been given a voice.

But—

There's one difference to how things turn out on Rourke, and how things go on Imir, Gethli. And it's us.

That's a little messianic, isn't it?

We made Rourke a success. We were the custodians of life and thought on that world until the others, the Humans and the Portiids and the rest, arrived and welcomed us to a wider universe. We clung on, beak and talons, because of what we became. And if not for that, they'd have found another dead world in Rourke, nothing but a few scraps and buried traces to show that humanity had ever been there. Imir never had us. It never had our conjoined ability to analyse and solve. The knack that let us find the narrow path

Rourke offered to long-term survival. We needed absolutely everything the world gave to us; all that crisis ecology Renee Pepper cobbled together, all the technology of the terraformers, that we lovingly restored and replicated and perpetuated. All without any of us actually understanding any of it.

Neither of us need to understand anything. The understanding sits between us. And now we need to understand Imir the same way. With the help of our native guide.

Liff can still sense the crowd that's come to watch the hangings. When she looks around she catches glimpses of them. If she squints a certain way, she can see their shadows, see them smudging the emptiness in the centre of Landfall. Sees the surge and tides of their collective movement, blurred together until it's the bristling back of the beast. Not their malice or their desperation or any human part of them; that's all theirs. But as though, in coming together, in just *being* all together, the ephemeral Wolf is conjured between them, to pursue its own existence. To seek its own purpose and identity, free of the angry mob that fuzzes into shadow and suggestion all around her. As though it's a matter of focus, and if she screws her eyes up really hard everything will snap back into clarity. Considering the scaffold and the dangling nooses, she decides she's not quite ready for that. So for now, it's just her and two big black birds that squat in the lowest branches of the First Tree. The dead branches, but when she squints she can see leaves on them, and she can also see when there was no tree at all.

"Where's the Witch?" she demands.

"Waiting for us to sort this out," says one of the birds with a long-suffering air.

"Otherwise you might as well buy a dog and bark yourself," says the other. The first bird eyes it.

"I don't even know what that means. Neither does she."

"It's just something that got said once, that we repeat down the ages. Like everything else."

"What is the Wolf?" she demands, and they eye each other and bob their heads and don't know. She realizes with a weird thrill that there is a secret layer to this world that all their obsessive searching has not yet discovered, and it is her secret. The second bird—Gothi, Liff decides—shrugs with its

wings and sinuous neck. The other one, the male one, is Gethli. She remembers. They told her their story, somehow. In dreams. Between moments.

“What are you?” she asks. Because when it was just a story, she could live with it. But now she and they are the only real things left, she can’t just dismiss them as tricks of the imagination or misfiled memories.

We’re a mistake, basically.

We are a triumph of rapid adaptive evolution.

Well, as a result of that, what we really are is a problem-solving engine.

On our home world, which your Ancients called Rourke, the problem we solved was surviving. We did that by analysing and mimicking the technology and behaviour of the humans who had released our own ancestors onto the planet. Some of us were very good at seeking out new things—for which they had to be very good at cataloguing and noting all the old things. And some of us were very good at taking that information and using it to solve problems in new ways. So between us we were able to take all the little bits of being human that our progenitors had left us with, and rebuild them into something that limped on, generation to generation.

We were only ever copying something that worked just well enough. But somehow enough of that then became something that looked like a civilization, from the outside. An entirely opportunistic and derivative civilization, made from independent halves of thought and memory working together. A bit like a very specialized human brain.

What they used to call non-neurotypical. Except, as we all went that way, it would eventually have to have been called typical. Because sometimes non-neurotypicality is what you need.

“So we present ourselves,” Gethli finishes, with a definite vocal flourish, “as a problem-solving toolkit par excellence, at your disposal.” Liff isn’t really sure what’s just been said, save that through complex novel permutations of sounds, the birds have communicated it all to her, just as they did before, whispering into her sleeping ear. Implanting the ideas in her mind.

She stares up at them. “Why me?”

“Well, that’s the question,” Gethli admits. “But you’re the one it has to be.

You take up a disproportionate amount of the world's attention."

"To put things more simply, wherever we go, there you are," Gothi puts in.

"You must have some inkling of that?"

Liff nods reluctantly. "I remember things..."

"Who's your grandfather?" Gothi asks, right out.

"Heorest Holt, the Founder," she answers promptly.

"How long ago did he come to Imir?"

"Three hundred and seventy-eight years ago."

"And how," Gethli prompts, "does that work, exactly? A bit more than, what is it, Gothi?"

"Three score years and ten."

Liff looks mutinously at them. "I know!" she shouts, hearing her voice echo from all the vacant buildings. "But why me?" She takes a few steps, the crowd ghosting in and out of being all around her.

"If we'd asked that question back on Rourke, we'd have died," Gothi tells her. "We just know to work with what we've got."

"And what we've got is you."

"You need my help, is that it?"

Both birds nod.

"And who helps me?"

They cock their heads, one this way, one that. "What do you want?" Gethli says. "You want us out of your life, maybe? You want your grandfather back from the Witch's spell? You want your life to go back to normal, whichever normal you prefer? All of these things will follow naturally if you help us."

Liff eyes them levelly. It's the storybook all over again, making deals with the things you meet, and paying prices for it. But her life has disintegrated to the point where she can't even tell what's real any more. She's standing in a town square that might or might not be full of people, in the shadow of a tree that's simultaneously alive and dead and not been planted yet. And she's talking to two birds, even though there aren't any birds on Imir.

"How do we make this happen?" she asks them.

"First we need to borrow a little," Gethli explains, and another bird alights onto the branches of the tree—no, another pair. Then another, and more.

Black wings are funnelling down from Afterstorm's cloudy skies, except the clouds are all birds. Great flocks of darkness rising from the hills, the seas and the horizons and spiralling about overhead, until the whole of Landfall is in darkness. Until they are sitting like midnight snow on all the branches of the First Tree, as well as on the roofs of the Council buildings and the Ricehouse and everything else that fronts the town's central square. They are all in pairs, and the pairs are all Gothi and Gethli.

Basically it's all a matter of processing power.

The reason Rourke worked, and why we were still hanging on when the others came, was our ability to put our heads together.

With enough of us, enough pairs of memorizer and thinker, we can solve anything. Or at least botch along just about.

The history of life on Rourke is one of great congregations of noise, thousands of us shrieking at one another. In the space between each pair, a mind; in the space between all of the pairs, a plan.

We are more like the Portiids' ants than the Portiids themselves, truth be told. They are very keen to convince themselves that we're aware, but the evidence suggests otherwise.

Don't tell the Humans, but it's just the same for them. Only that with them, it's all inside their skulls rather than between them.

But now we're borrowing, and what we're borrowing is more us. Mimicry is what we're good at, after all. So we mimic ourselves over and over until we—if I might make the pun—inflict a great unkindness on Imir. An attempted murder, perhaps.

Please stop. You don't even understand the pun.

And yet we are trying to murder something. A mercy killing perhaps. We are putting a sequence of events out of its misery.

“Basically,” one Gethli explains to Liff, “we need your help to identify and isolate the things that don't belong. You understand what we mean by that, don't you?”

She thinks of those faces that keep showing up and yet are always out of place. Only a handful of people but somehow they're always *just arriving* from somewhere and then everything starts going wrong.

She nods. “And what then?”

“Then we take them away,” Gethli promises.

“And what then?”

“From our point of view, we’ve recovered our expeditionary force, and that’s the task the Witch—”

“Or Doctor Avrana Kern, as she really does prefer to be known,” his Gothi corrects him.

“That *Herself* has set us,” Gethli finishes.

“And from my point of view?” Liff asks.

“It all goes back to normal. You can have your life back. In the right order,” he tells her.

“As many times as you want,” Gothi adds, somewhat opaquely. Liff feels that Gethli throws her a warning look.

“It has to be me?”

“It could conceivably have been Heorest Holt,” Gethli says. “He occupies a position of equal significance.”

“But he’s proved difficult to deal with,” Gothi adds, “so it’s you.”

Liff feels herself on the brink of something. “Do you *know* why me?”

A pause, all those massed birds staring down at her, rustling feathers, croaking at each other, never still.

“We know,” Gothi admits.

“We haven’t said because you won’t want to know,” Gethli tells her. “Do you want us to tell you?”

Liff stares up at them, the mass of them that is still just the two of them. An existential vertigo tugs at her.

“I don’t want to know,” she tells them, because she can feel the knowledge, like that great Wolf behind her, like the thing which follows the girl’s trail in the woods, in her storybook. A wolf that could swallow the sun and leave nothing but darkness and despair.

She remembers when she first saw Miranda. She just doesn’t remember which, out of the first times she saw Miranda, came first.

“What happens if I say no?” she asks them. It’s a hard thing to do, to stand up to that vast black-coated parliament, but she won’t go any further without knowing her options.

“Nothing changes,” Gothi tells her.

“We may as well tell you,” Gethli adds, to Gothi’s glower, “that you can

stop this at any time. It's not *us* holding things like this. We don't have that kind of sway around here. It's all you, Liff. We are borrowing your influence on things, just as we borrow everything. If you decide we're not doing this, then we're just the two of us and back to where we were. Parasitizing your world and your life and trying to scratch a living. Just as always."

Again the *Why*, but they've already told her she wouldn't want to know, so there's only one more question really.

"What about Miranda?" she asks them. "Are you going to hurt her? Kill her? Make her... not be there?"

Gothi and Gethli look sidelong at each other, which is most of how they look at anything. "Why?" they ask together.

"She's my teacher," Liff says. "I don't want bad things to happen to her." Unable to keep her gaze from the nooses. Bad things are all that seem to happen on Imir these days.

"We are trying to save Miranda," Gothi tells her. "That is what we're doing. We're trying to retrieve her. She came here to observe, but things went wrong."

"And the others?"

A pause. Another sidelong look. "And the others, yes."

"What do I need to do?"

"Build the puzzle with us, from all the different pieces," Gethli says. "Then, whatever bits are left over, those are ours to take away. The pieces that don't belong."

She needs to give up her sense of self, in the end. Self is rooted to history, after all, and her history is the puzzle, but it's in pieces. She needs to become a kind of platonic Liff, a product of all those sequences of events, and of none. But they have the time. The birds explain they have all the time there is, so long as she's happy to keep going.

She meets Miranda again coming off the *Urshanabi*, the *Enkidu's* battered old heavy lifting shuttle. Heorest Holt's there, the other focal point of Imir's story, and amongst the genuine colonists from the ark ship he's bringing a handful of imposters. Men, women, children. Why would there be children? None of it makes sense. They're behaving differently to the others. They speak in odd ways, still learning the accents and idioms. Easy to miss, in a

colony still forming its own ways of speaking, amongst immigrants brought from all over Old Earth. And yet they don't fit. Fabian's too clever with his hands and Portia's too swift and strong. Paul is too wise and his children are never still, getting everywhere. And Miranda is too happy, Liff realizes. She's too open and helpful and friendly, so that, when they meet, Liff takes to her immediately. Because life on Imir is hard, and it's not what anyone thought they were going to end up with when they went aboard the *Enkidu*. Though it's better than Earth.

She meets Miranda in town at the height of Landfall's expansion, when they're building farms all over and the forests are a dense and seemingly inexhaustible source of timber and darkness. She goes to classes and learns things nobody should be teaching her. Her mind is stretched in ways that don't fit Imir's dour subsistence model.

Then she sees Miranda and her fellows hauled to the scaffold, later, when Landfall is dying, because the land it fell on is dying. Crops, livestock, ecosystems, everything that the original *Enkidu* science team installed on the planet falling apart because their best, their absolute best, wasn't quite good enough.

And she hears the commentary of her Corvid toolkit and companions.

If they'd had us, say the birds, perhaps it could have gone differently. The birds would have seen the patterns degrade and sought solutions to them, a constant hand on the ecological tiller to steer them through the rapids. But there are no birds on Imir, and so the colony degrades and deteriorates, and the people grow more desperate. Fractures arise under the increasing pressure, with more and more effort going into scapegoating and blame rather than trying to mend what is broken. And so it goes...

Miranda, Portia, Fabian, Paul. As all the other pieces are squared away into the pattern of Imir's history, she can now see them for what they are. And because she's had to box away a certain amount of what makes up Liff, she can look on them with equanimity. Human bodies, but they cast different shadows. Arachnid shadows. Squirring tentacled shadows. But the worst of them is Miranda, whose own shadow just oozes hungrily out away from her, multiplying and expanding and devouring everything it touches.

"I thought she was my friend," Liff says.

The birds confer.

"She always was," Gothi states. "She's just..."

“Enthusiastic,” Gethli puts in, and then, “Adventurous. She likes being a part of things.”

“Or vice versa.”

It’s as though Miranda’s standing there before her for real, actually present instead of just something they’ve excised from Imir like an appendix. The human woman, swimming in a vast dark sea of something *other*.

“Is she real at all?” Liff asks.

“Well on one level, yes, entirely real,” Gothi says. “The Miranda you knew is a genuine person, though not actually a teacher in Landfall who’d come from an out-farm. But you’ve guessed that much. A woman born on another world, who had some experiences you’d consider quite remarkable, and who eventually made a momentous decision about what she wanted to be a part of. A bargain with something *other*, like in a story.”

“On another level,” Gethli finishes. “It’s a reasonable proposition to say that none of us here is in a position to really judge. Glass houses and stones, isn’t it?”

“You don’t even know what that means,” Gothi tells him scornfully. And neither does Liff.

And then it’s done. She can let go, have the whole pent-up world crash down and sweep her away with its tides, its seasons, its years and generations, and go be part of it again.

“Can I say goodbye?” she asks. But she can’t, because the things she wants to say goodbye to are gone. That was the point of the whole exercise.

“Will I remember?” But she won’t, because these events won’t have happened to her. She’ll be a different Liff, a lesser Liff, because Miranda won’t be there to enrich her life. Because the stories will remain bound into the pages of the storybook. No witches, no talking birds. No birds at all. No growing up with Heorest Holt as a grandfather either. They never met; she never knew him, until the outsiders arrived and threw everything out of order.

“Will it be all right?” she asks. There are far fewer birds now. She hasn’t seen the others take wing and flap away, and yet there are only a scattering of them, just a handful, then only two. Gothi and Gethli in the dead branches of the First Tree.

“Will it be all right?” she repeats. One thing about making deals with

inexplicable things in the stories is that, if you're not careful, you can receive something that is simultaneously exactly what you asked for, and not remotely what you wanted. Somewhere in the distance, and retreating, she hears a lonely howl that echoes from horizon to horizon, but is only in her head. Betrayed, abandoned, cut out of the future, forced back into the landscape.

They stretch their wings. They don't answer. They're birds, after all. What could they have to say? Heavily, with the weariness of the ages, they lurch their bodies into the air and ascend, wings pummelling at the sky until they're just dots. Until they're nothing and Liff is alone at the silent heart of Landfall.

Distantly, she hears Miranda start to scream.

10.6 Miranda

Miranda runs. Behind her, the crowd boils out from Fabian's Fix-it, hounding her heels, swarming from the sidestreets. A hundred hands grasping for her. Hands, and other things. If she was a bolder woman, she'd turn and face them, pay the dues she has coming. Take the vengeance this whole world is surely owed. Deep inside she understands it's all her fault, even if she can't quite admit to herself why.

And so she runs: her two feet pelting down the streets of Landfall while the crowd only grows at her back, and only gains on her.

Ahead she sees a single stark figure, a tall woman in dark, antique clothes. A raven perches on her shoulder and another circles overhead.

"Miranda!" calls the imperious voice of Doctor Avrana Kern. "You can't run forever!"

Miranda knows that's true, but knows also that she'll try, until her stamina or tripping feet reach the near edge of all the forever that time allows her. She casts a look back at them, because she can't stop herself. Because justice demands they catch her. She sees so many faces she knows, that she thought were her friends. Faces, and other things. In the lead—of course—is Portia, because Portia always had to be the fastest, the strongest, the most agile. Now she's shrugged off the constraints of a human shape and is even faster. She skitters on eight legs in Miranda's wake, fangs raised in threat. She springs in lightning leaps to walls or onto roofs, until she is scurrying parallel to her quarry, steering her. On the other side is Fabian, smaller and less aggressive but no less nimble.

The human contingent follow behind, a great angry mob baying for her. She sees Erma Lante there, still dragging the helmet of her ancient encounter suit. There's Baltiel and Lortisse and Meshner and all the old guard. Overhead, Paul billows like a banner, impossibly suspended in air, tentacles forming mathematical arabesques as his skin flushes through a rainbow of

emotions.

She makes it past Kern, and yet there the woman is again, striding nonchalantly from between two houses, and the damnable birds descending onto roof and railing to gawp at her.

“Leave me alone!” Miranda shrieks at the ancient AI. “You did this! You made it all go wrong!” Clutching at straws.

Kern’s unlined face summons a pitying smile. “We both know that’s not the case,” she calls, and it’s just a confirmation of what Miranda does, indeed, know. It’s not Kern who’s caused all this.

The history of Landfall unfolded in the shadow of a half-spoken guilt: that, because they had children and grew their colony, they never went back for the sleepers on the *Enkidu*, betraying Earth’s past for their future. Miranda runs under a shadow too: not the wings of the birds but the knowledge that it’s *her fault*. And why? Is she a terrible person? She always tried to be a good person. Ever since she understood what a person was. She’s only ever thought of how to help: help Liff, help Landfall. And yet, on another level entirely, she is a terrible person. If you define “person” the way most of the Landfallen, most *humans* would.

Sometimes the monster is within you all along.

“Miranda!” Kern’s schoolteacher snap, and she stops, but only because there’s nowhere to go.

The crowd is at her back, thronging, but it’s here as well. Here in the centre of town, of course. There the Council building, there the Ricehouse and the grounded hulk of the *Urshanabi*. And there the rest. The scaffold. The tree. The crowd presses closer, and Miranda finds herself inched towards that stark monument to desperation.

“Miranda, listen to me,” Kern says. “You need to remember who you are.”

“I don’t want to,” she gets out. She knows there’s something terrible, the secret core of herself. It horrifies her. She can feel it seething there, hungry, desperate to devour everything. And all around her the people she knows—or once knew—stare accusingly at her, shuffling closer. She sees humans and spiders and Humans and Octopuses, and all of them just jostle and push. The space around her and the scaffold is shrinking, like the last span of beach at high tide.

A hand closes on her arm. It’s Kern, and she can’t writhe free. No more

running.

“I’m sorry!” she bursts out. “I ruined everything. I didn’t mean to, but I did. I should never have come.”

“On that, at least, we can agree.” Kern looks haggard and fed up. “Miranda, we’ve been doing this a long time. I’m very tired of it. We need to go now. You need to pull yourself together.”

The crowd is all around, but only Kern has a hand on her. She looks from face to face to non-face. They’re waiting for her.

“I said I’m sorry. I’m a monster. I ruin everything. I only ever wanted to *help*.”

Kern, de facto spokeswoman for the mob, looks slightly thrown. “What are you even talking about?” she demands. “Can you just come back to who you are so we can get out of here?”

“I know what I am.” It’s all coming back to her. If she reaches far enough, she can find the archived experience of when she was nothing but a clot of swiftly replicating cells in a Nodan tide pool. Seeking a host to hide from the open water. Governing that host and living through its senses. Growing and dividing and dispersing, and yet remembering everything. Then the humans came, and the universe opened, and all the rest. The wonder, the grandeur and the terrible things she did when she was a monster. And the monster is still within her. “I ruined this world, didn’t I? It’s all me, everything they’re afraid of, everything that’s gone wrong. Parts of me getting into everything. Having *adventures*. I’m sorry.”

Kern blinks at her. “Don’t be ridiculous,” she says. “Why must it all be about you?”

“What?”

“You think you screwed up *this* place?” A wave of the hand at the buildings of Landfall. “Miranda, this place never had a future, in a very real sense. It was doomed the moment they set foot on this world. Oh, they made a game try of it, I’ll grant them, but they were no terraformers. You didn’t make the crops fail or the soil die.”

“But... the impossible things. I’ve... seen too much, too many times. I’ve lived through too much here, so many events that don’t match up. If it’s not *me*...”

“Oh, *that’s* you,” Kern says dismissively. “But not for the reason you seem to think.” She sits down on the scaffold and her hands pluck at each

other idly, as though pining for some ancient habit she can't even remember any more. "Do you remember who you are now?"

Miranda looks from her to the crowd, but the crowd has vanished away. Or rather, has returned to her. All her selves she was fighting to keep distinct. Fabian, Portia, Paul, Erma Lante, all those people who have contributed to her, of whom Miranda is only the most recent.

"I hadn't realized how deep it ran," she whispers. "The horror. I disgust myself, Avrana. I have seen myself with Human eyes, and Portiid eyes, and more, and I am obscene. A devouring mass. When I met humanity, I learned something terrible."

"Knowledge of good and evil," Kern says, sounding bored. "Yes, yes. Can we go now?"

Miranda feels within herself for that loathing, the angry mob that chased her. Feels within *Miranda*, the human identity she wears, that idealistic explorer only too happy to contribute part of herself to become part of something bigger.

"I am not fit to wear this shape," she says hollowly.

Kern regards her archly. "Miranda, you have spent your time on this planet trying to make people's lives better, large ways and small. I've seen it, as I've tried repeatedly to extricate you from it. You've been almost crippled by how much you care for people here. I may as well point out that, back when I *was* human, I didn't actually give a damn about any of the host of useless monkeys. By that metric, you're already doing a better human impression than I ever have."

10.7 Miranda

“I don’t understand,” says Miranda.

She’s in the Fix-it, the house towards the outskirts of Landfall they took over when they arrived. That they convinced people to cede to them, under the aegis of Fabian’s apparent ability to mend anything and get any machine back in at least temporary working order. Because he cheated by way of an advanced understanding, yes, but also because he was really very good at it.

“We were going...” *on an adventure*. “There was an expedition,” she corrects herself. “To the planet.” *Imir*.

“There was an expedition, yes,” Kern agrees. “Of very limited scope.” She’s sitting on one of the workbenches, the birds flanking her, as though she’s just one more hunched crow.

“To the colony.” Miranda looks around the dilapidated walls of the Fix-it, wondering how Fabian let it get this run-down.

Kern doesn’t nod, just looks at her for a beat and then says, “An expedition of one, Miranda. To the colony, and to the other thing whose signals we detected.”

“We—I never did find out what that was,” Miranda admits. Somehow she hadn’t even thought of it, though now Kern has raised the topic the memories come flooding back.

“We did,” Kern tells her. “When you didn’t come back. We spent some considerable time working out how to investigate it without just falling prey to it. And we located an engine buried perhaps two kilometres in the earth, near the location of the Landfall colony.”

“That does what?”

“Records,” Kern says. “And simulates.”

Silence stretches. When it’s plain Miranda has nothing to say to that, Kern goes on. “An alien device. Unknown origin. Predates *me*, and that’s saying something. Miranda, there’s something you need to know—”

Miranda wants to leave, then, and for a moment Kern stands in her way, forbidding it. But she summons her will and sidesteps the woman, pushing out into the open, into the suburbs of Landfall. There's nobody. The roofs are storm-ruined, doors open, shutters hanging off windows. Everywhere the paint peels and rot has eaten into every surface.

"Is this engine what's killing the colony?" she asks, thinking, *Liff, I need to find Liff.*

"Miranda, go back inside."

"No. Tell me what's going on here." She feels the place is disintegrating as she watches, and this is her *home*. She's spent far too long here. Too long to even be possible. Her memories are suddenly piling up like a great disordered heap of broken components. She's used to being a grand repository of experience, but now she's almost choking on all the things she's been and done, and done again, and done differently, and still finds only more *doing* behind it.

"Back inside and I'll tell you," Kern says.

"No." Because she has unfinished business. She can't save Landfall, perhaps, but there's someone she surely can save, or what's it all been for? She strides off into the town, that same path she ran down with the crowd at her back. The same one she was dragged down by the lynch mob.

Kern sighs, making a show of running to catch up though surely she doesn't need to.

"There was a colony on this world, Imir," she calls past Miranda's shoulder, "started by the crew of the ark ship *Enkidu*. They came here, and built, and it lasted quite a while, but it failed. For its own reasons, it died out. They did their best but it turned out that, after generations, it wasn't good enough. Miranda, come back!"

Instead, Miranda picks up her pace, looking for any sign of anything. There's nobody. Everything is decayed or collapsed. She's seen Landfall in dire straits but not like this.

Kern stalks after her angrily. "Just stay still, will you? There's nothing to see."

"Then what am I seeing?"

"Miranda, there was something ancient here, like I said," Kern tells her. "The thing in the hills you never found. As they lived their lives it did its job and recorded them. Every detail, every life."

Miranda doesn't want to hear or understand any of this, not after all she's invested in Landfall and Imir. But there's a limit beyond which self-delusion just can't stretch, and she's reached it at last. She slows, though she doesn't stop. "You said it simulates."

"There was a theory back in my day," Kern is right at her shoulder now, matching pace, "that all we experienced might be only that. Not our genuine history but a re-run in a computer. The irony of which isn't lost on *me*. There was some statistical chicanery that even suggested the odds of being in a simulation were greater than not being in one, based on the amount of time in the universe, and how long it would take to get to the point where you could build such a device. It all felt a little too mystical for my liking, just another way of putting humanity back at the centre of the cosmos. But now we've met such a device, although it's not, as far as we can work out, actually trying to simulate a *universe*. Just a world. A colony. This. And us right now."

They are right at the edge of the town square, though Miranda would have sworn they hadn't walked far enough for it. Kern stays her, hand on her shoulder, keeping her from seeing what might be there. Thinking of the tree, Miranda doesn't pull away.

"When you arrived, the machine reacted to your presence, you see," Kern tells her. "It read you and incorporated you into its looped simulation of the colony. It tried to make you fit. And because you are what you are, it tried to make you fit multiple times, as different people. It's acquisitive like that."

"The engine." Miranda understands. "It's like me."

"Some function of it does what you evolved to do," Kern agrees. "Which may be what made inserting you into the simulation so problematic, because things have certainly been confusing around here. You didn't make recovering you easy."

"What happened to *me*? The physical me?"

"When the engine contacted you—read and transcribed you—you must have lost control of your actual body. Your ship went down and then you... well, the base *you* devoured your human body. It's a shock, when the thing gets hold of you. Even for me, when I sent this instance of myself after you. I remember. The *you* that was left behind suffered some kind of serious conflict with the way your body related to itself. And perhaps you were also aware of yourself copied into the simulation. Which, given that you essentially live in a simulation of the world *anyway*, might have caused some

acute dysphoria. When we were able to safely approach, which wasn't for a while, we couldn't find anything that was *you*. We thought we'd lost you completely.

"But we knew the engine was there, by then. We'd started investigating the very edges of it, and I became aware, from what the birds were pulling out of it, that we hadn't lost you at all. Or at least, an instance of you had been preserved. You were in the simulation and wreaking havoc, because the machine kept trying to fit you in and the simulated events spiralled out of control, all sorts of inconsistencies and clashes. Which I'm intimately familiar with because I and the two Corvids, the rescue party, had to immerse ourselves in the simulation as well, to try and recover you. But we've finally isolated you and we understand the workings of the engine well enough to extract you properly, as soon as we've grown a new body to decant you into." A hard pause. "You're welcome, by the way."

Miranda looks at her bleakly, then down at her body, Miranda's human body. "Wait, so we're...?"

"Still in the simulation, yes. In a quiet part, where you're less likely to provoke the locals into lynching you."

"At least Liff prevented that," Miranda says, and then stops. Because she can also remember Liff *not* preventing that. She has a host of memories within memories, the same events experienced differently, and simultaneously from differing perspectives. Abruptly she feels existentially dizzy, even the multitudes within her dwarfed by the scale of what's gone on.

"I've watched them hang you, or the birds have," Kern says dispassionately. "Thirty-seven times, in fact. We've been doing this for a while. Miranda, I'd like to go now. Can we just wait back at the house?"

A simulation, playing out lives in a narrative that runs to its conclusion and then starts again with Heorest Holt landing in the *Urshanabi* and setting foot, first man, on Imir. Miranda understands. She remembers him, the lean old patriarch, who was also the middle-aged captain shouldering all that responsibility. The legend, Liff's grandfather who couldn't ever have been her grandfather.

"Liff," she says. The silence from Kern speaks volumes and she rounds on the woman. "What about Liff?"

Kern has no expression. "Come back to the house."

"She was you, or one of us, or...? Was she real?"

“She was a colonist,” Kern says slowly. “She was an individual who commanded an inordinate amount of the simulation’s attention, just as the original ship’s captain did. When you disrupted the course of the simulation with your presence, and things started to go wrong, the engine drew on the two of them to fill in the gaps. Holt kept coming to see me, the girl kept going to you. As if they were antibodies trying to neutralize the problem. But, like a runaway immune system, they became the problem themselves.”

Miranda wants to ask why those two, but she knows. “Because he was the first.”

“Yes.”

“And Liff...”

“Was the last, yes.”

Kern’s using the past tense, but there is no past tense in the simulation, not really. It’s always *now*, no matter which *now* it is. Whether it’s the *now* of Holt and the others chiselling the first foothold on Imir, or Landfall’s glory days, or the slow fissuring decline. Miranda has lived through all those *nows* and Liff was there in each one, but this is the *now* she belongs to, truly.

She forces herself to step out into the centre of the town. She can identify the buildings, though many have been cannibalized for firewood and the First Tree is just a stump. Feeling at her neck, she can’t be entirely unhappy about that.

Even as she walks out into the open, there is a sharp sound and she sees the girl there. Liff, a scrawny child just on the wrong side of becoming an adult, the same age she always is, no matter which *now* Miranda meets her in. Gaunt and hollow-eyed, staring at them. The clatter was the armful of boards Liff has just dropped. She looks terrified, but she isn’t running. Miranda stops a decent distance away, so as not to spook her. There is absolutely no recognition on Liff’s face. Miranda has been retrieved, after all. She has been excised from this girl’s past, in all the many ways she existed there.

In Liff’s other hand there is a book, dog-eared and loose-paged. Miranda remembers it. Talking animals and witches and girls who could solve any problem.

“Are you Seccers?” Liff demands. She is filthy, hollowed out. She trembles with emotion and fatigue, but she scoops up a stick and brandishes it at them nonetheless. Miranda wants so desperately to go to her. Instead she just shakes her head.

“Are you Watchers?” Liff asks, and Miranda wonders if they are. She has no idea, now, whether that legend was truly about the frozen majority up in the *Enkidu*, or if it was somehow something about the alien engine they’re all really being simulated in. Or if it came out of an understanding, somehow, that the Imiri colony really was being *watched*.

“Have you...” Liff’s voice quavers. “Have you got anything to eat. Please.” She licks dry lips and the stick clatters to the ground. “Please...”

Miranda automatically pats at the shipsuit she’s wearing now, alien clothes for an alien being which only thinks it’s human. And yet human feelings tear her up from inside. Portiid feelings too. The wild bright riot of an Octopus heart. Because empathy is the cornerstone of what her composite people have made together, and so she *feels*. She can’t bear to live with the thought of Liff picking through these ruins, the last living human on Imir, using up everything that’s left until there’s nothing left, then using up herself until she starves. She remembers teaching and talking to the girl, that boundless imagination, her enthusiasm, her sharp mind. A gem that any society should have cherished. Instead here she is, dying unregarded on a dead world, willing to beg even from the alien visitors because what does she have to lose?

“Kern, please,” Miranda says, meeting the heedless stare of the ancient AI. “Can’t we help her?”

“It was all a long time ago,” Kern tells her. Then time catches up with them, and they leave.

PART 11
THE FERRYMAN

Imir

11.1 Holt

I

He took the *Urshanabi* down himself. The last of the *Enkidu*'s heavy lifters, laden with the seeds of their new colony, fixed up as best Olf could manage.

The atmosphere fought him at every turn. The flight systems wavered. Guidance from up on the ark ship was patchy, with the clear corridor he'd been given to drop down winking out, then springing back into being where it shouldn't be. All down to Holt at the controls: human hands, a human mind. It wasn't even the stormy season, just a clear-skied day at the cold end of the year for this hemisphere of the planet. Still, they jolted and jumped and he heard the ancient sinews of the *Urshanabi*'s abused frame creak and protest around him. In his ears came the clipped voices of the other Key Crew, on the ship and with him on the shuttle. Above him, the studded darkness of the void turned into the grey-white of atmosphere. Ice materialized on the shuttle hull as soon as the air was thick enough to bring it. Other parts of the ship started overheating beyond their projected tolerance. In the seat behind him, Olf was constantly adjusting the ship's systems, moving the problems around so they all kept spinning and none of them fell off to shatter on the floor. This was their only shot. The *Urshanabi* was the sole craft they had left which could transport significant loads to the surface and back. Everything else had been cannibalized or lost on their approach, sacrificed to ensure what was saveable could be saved.

The surface of Imir was an unrelieved brown, save where the black lines of rivers cut through. There were clouds, and then the clouds were above him, pierced by the half-brake, half-fall of the *Urshanabi*'s descent. Holt wrestled with the controls, correcting where the automatics were drowning in errors.

He remembered the moment he was chosen, back on Earth. So many

candidates, because the best way to guarantee escape from the dying homeworld was to be made commander of an ark ship. He'd met some of the others briefly. Lessing and Musang and Guyen. They'd had nothing in common, save some invisible metric all those tests had been hunting.

He'd made the time to meet his own crew, though, insisting on it, even though the programme hadn't really allowed room for that. He'd done his best, in what little time they had, to make them into a team. Him and Esi, Olf, Garm, the ill-fated Toke. The cupped hands that would carry humanity's future out into the wider universe.

He hit a stratum of turbulent air and the *Urshanabi* lurched sideways, engines stuttering. Holt felt himself like a precisely calibrated mechanism, fighting the shuttle, but not so hard that some part of its ancient frame would give. Coaxing it, persuading it, talking through its problems, as though he was a shrink in a therapy session.

"Signal," from Esi, crammed in right at the back of the cabin. "Heo, the signal."

He couldn't spare her the time, even though he saw the same on his display. The enigmatic voice from the hills that sang out to them, even as every other light lit up red, and the mauling fists of the atmosphere clubbed at them with blind fury.

II

Heorest Holt, the man of Earth. When they were down at last, with those hills a brooding, broken line heaping up the horizon, he made sure he was the first off the shuttle. The first to set foot on the dry earth of Imir, which the terraformers had taken just so far towards habitability and no further. Still shaking from the near miss of the descent, he was a man with a sense of history nevertheless. He made them all queue up behind him as he descended the ramp. He was being ridiculous, he knew, but given what they'd just been through, he reckoned he was owed the honour. Garm wanted to go out first with a gun, in case there was a tribe of feral terraformers already sharpening their skewers, but of course there was nobody. It was their world. Theirs, and whatever had sent that signal.

No signal now, though. And though she would sit by the receivers for a

long time, somehow he knew Esi would never pick it up again. It had spoken, and now it was waiting for him, out in the hills somewhere.

The air smelled of cold, of distant water, of nothing else. There were none of the living processes, yet, to give it a savour. That would change, Holt knew. They were here to bring long-delayed life to Imir. They were going to finish the work of the Ancients.

He moved aside to let Garm and Gembel's teams start shifting equipment down the ramp.

III

Heorest Holt, older now but still strong. Watching Gembel's first successes: the plants he raised from the Imiri dust—which was now becoming soil thanks to the organic matter they brought down to the planet. The fungus species and the earthworms which had collectively survived a year without withering and dying. Holt had taken the weary old *Urshanabi* up and down the gravity well many times now, bringing machinery and resources and people. More people, transformed from anonymous cargo to individual human beings. But always so many still left sleeping as the *Enkidu's* systems slowly decayed.

Looking up at the night sky with its one mobile star; standing out in the cold, even though Esi had called him to come in. Sometimes Garm joined him, sometimes Gembel. All of them not quite able to cut themselves away from where they had come from. Not only the swift point that was the *Enkidu*, but—if you knew where to look—one of the other stars out there was Earth's sun. He could go back to the ark ship as often as the shuttle's integrity would allow, but there was no crossing *that* chasm. Earth was forever lost to them.

Good riddance, he told himself, trying to remember only the poison and the shortages and the terrible drawn-out end of humanity's long history on its home world, but he couldn't rid himself of Earth. It was in his bones, his blood, set down in the mineral composition of his teeth.

IV

The work was so slow. He'd somehow imagined everything springing into being, a green tide across the surface of the world, but it was painstaking, careful work. Gembel wouldn't be hurried. They had started off living out of the shuttle itself, then out of a handful of prefab structures barely qualifying as buildings. Everyone worked, and with precious little to show for it. Days turned to whole seasons before the first visible signs of change began to bloom from the alien land. There had been printer failures, and rationing, and desperate flights back to the ark to bring down parts as well as the last dregs of the food stores. The colony had almost died before it was ever born. Holt had slept beside Esi Arbandir, huddled close for warmth and comfort, and at the point he was dropping into sleep he'd hear the signal, just as it had sounded to the descending *Urshanabi* on that first approach. It called to him from the hills and he promised himself he'd go hunting it. Some day. When there was time. When the work was finished.

Or else he'd hear another signal, the one from orbit. The slowing rhythm of the *Enkidu's* damage reports, the lethargic heartbeats of all that cargo, and he'd promise them too. He'd be back for them, some day. When they had everything ready. When there was enough good land set up to be farmed, enough food, enough everything. He imagined himself standing before a massed jury of the left-behind, explaining himself, justifying all the times he had flown to the ship and returned without them. *Why bring us from Earth only to abandon us?* But he had no answer. He knew the other Key Crew had the same thoughts. And yet he'd seen Gembel's calculations. He couldn't argue with them. Wake everyone now, wake even twenty more people now, and everyone would starve.

V

There was always more work, and Holt still didn't have enough hours in the short Imiri day, even if the ten Imiri years that had passed were shorter than Earth years. The initial desperation of just trying to claw a foothold had become a long slog of logistics and administration, dispute resolution, resource allocation. There was a whole village of little grit-slab buildings now, unlovely but functional. The first farms were producing, even though constant breakdowns in the machinery meant some of the hard work needed

to be done by hand. The solar collectors were up. The water purifiers worked, though they were hardly necessary given the absence of any hostile bacteria outside the contents of their own bodies. Everyone could cook and wash and have light to read by when the evenings drew in. A few years of hard experience meant they all knew how to weather the biannual storms, as well as the vicissitudes of the hot and cold seasons they bracketed.

They'd brought down another load of woken cargo from the ship, pushing the envelope of their ability to support people yet again. The idea was, of course, that eventually things would just take off. They'd be able to prepare more and more land, and they'd need more and more people to work it, and the amount of people they could feed would go up even faster than that.

And Esi was pregnant. She wasn't the only one but she'd been the first. In the early years, everyone had made very sure that such things didn't happen, because times were hard and that sort of complication wasn't what anyone wanted. But that kind of discipline had slackened off, and now she was—with every medical safeguard Gembel could scrape together—about to give birth to the first child Imir had ever seen.

There was a logistical problem inherent in that, Holt knew, but what could he say? Should he have told his own partner *No*? Should he have told himself *No*? And, because he could do neither of those things, he certainly couldn't tell anyone else *No*. Given that he was captain, and that was the sort of example he was setting. People had been working to make Imir habitable for years now. They had settled down with one another. They were doing what people had always done, since before they were people.

At the door of the impromptu maternity ward, Holt paused and looked up into the evening sky, seeing that swift-coursing star that was his ship, and all its cargo; imagining them looking down accusingly at him.

Which of us does not get to live, he heard them ask, so that you may have your child? There would be more voices added to that chorus, and still more. And next time he went up to collect new recruits from the cargo, there would be fewer names on the list, because the planet was now producing its own new mouths to feed.

There was supposed to be something better, he told himself. Where was the hope that signal had held? One day soon he'd go and find it.

VI

He never did, though, not over the decades. Oh, the odd expedition into the hills with Helena Garm, until the youngest colonists started to talk about it as an eccentric fancy of his. As though there never had been a signal, for who heard it now? Nobody's radio receiver was playing host to ancient aliens or terraformers or whoever it had been. He and Garm hunted until they became the quiet laughing stock of Landfall. And then they stopped, because who wants to be that? Despite all that searching, they never found it. Not after the *Urshanabi* had become nothing more than a rusting monument in the centre of the town they called Landfall. Not after he stepped down from the ruling Council, making way for Gembel because they didn't need him there any more. His work was done. He'd beaten time and maths and incomplete terraforming. The colony on Imir was a bustle of human life, out here on a world thousands of years away from home.

Gembel had once talked about the point where mechanization would take off, so that they'd all have lives of ease and Eden, no need to toil and spin. But that had never quite come about. The rudimentary power grid still worked, most of the time. Outages were sporadic and brief, so far. Storm damage was reparable. And yet they were still a way short of moving into some automated, industrial age. They couldn't harvest enough raw materials. The world had no fossil fuels, no fossils, no living history to grease their way into a golden age of luxuries, cheap power and plastics manufacturing. By the time his beard was grey, Holt felt that they'd thrown the colony as high in the air as they could, and he was watching it at the apex of its parabola. Perhaps, if they all worked hard enough, it would level out and fly. Or it would come back down with a crash.

And so they worked hard. They still had all the agricultural machinery and amenities, though now the key skills were repair rather than manufacturing. Where the machines left off, it was down to hard graft, the lift and carry, the journey by foot. Or, because Gembel had foreseen the need, using the huskier breeds of pig to pull and drag and carry.

He barely thought about Earth any more. His old-man dreams were all of the short years and short days of Imir, the storm seasons and the new farms. Until he came to himself one morning, looking at his long-nosed, long-

bearded face in the mirror, trimming his unruly beard with a blade because the electric clipper hadn't worked in an age and repairing it was nobody's priority.

I don't have long, he realized. It wasn't as though he hadn't achieved a great deal in his long life, but this one thing had eluded him. So he decided it was time.

VII

He was going to be a grandfather. Imir's second native generation was already growing in the womb. That was what finally sent him on his last expedition into the unknown. The one he wouldn't return from.

He was old, and some years back had broken his leg, which still ached. His back hurt and his teeth hurt, and the winters were too cold and the rain too wet. The usual. But he'd helmed a colony that was now doing well enough it didn't need his hand on the tiller any more.

Esi would handle things in his absence, he decided. It was time for him to indulge himself. In his dotage, he finally had the time.

He'd spoken to his daughter. He'd be back before her time came, he promised her. One more promise in his life that was really him just saying the words and hoping events wouldn't make him a liar.

"Have you thought of a name?" he'd asked and, when she hadn't, "If it's a girl, you could call her Liff." His own grandmother's name, from Earth. He was old, after all, a piece of the past holding on with both hands as the winds of time tugged at him. That kind of connection seemed important somehow.

Then he set off into the hills, without fanfare, only a handful of quiet farewells sending him on his way. He went hunting the thing that had spoken to him even as he fought the shuttle for mastery of its descent, and that had spoken to the *Enkidu* as it hung in orbit.

Perhaps he found it. Certainly he never returned. Perhaps when he discovered the truth, he couldn't ever go home with it, like a character in a story.

Sometimes the truth is poison, and nobody wants to bring poison back to their family.

11.2 Liff

I

An uncertain amount of time later a girl named Liff was born, who couldn't really have been his granddaughter. But then names come and go, looping like serpents through a family's history. She was born into the world her ancestor, Heorest Holt, created, though not the one he had foreseen. Gembel hadn't foreseen it either, despite all his planning. Gembel, almost as long-dead and gone as old Holt himself, had done his level best to build for eternity. He had been a good craftsman; the fault lay only in his tools.

Liff was born into a dying world. Not the last child to be born, but in a sense the last child of Landfall. The last child of Imir, because there never was a Second Colony for any Seccers to have come from. By the time Liff was born, though, belief in those shadowy neighbours was practically universal. It had become important to have something to blame when things went wrong. When Liff was a child, so many things were going wrong that the vague concept of the Others had crystallized into something all-pervading that overshadowed everything left of the colony. It grew even beyond the mundane idea of another group of similar humans elsewhere on Imir, an impossibly hidden mirror to Landfall. The old guilt about those left behind on the *Enkidu* slowly marinated in the collective unconsciousness, until people glanced superstitiously up at the night sky. Feeling their futures were written not in all the slowly wheeling constellations but in the ire of that one fleet-moving satellite that streaked overhead every night.

And, in whispers, some even spoke of that other voice. That siren song which sometimes seemed to interrupt their radio conversations and their dreams. The voice from the hills that had called old Heorest Holt away, and others after him, who'd never come back. As though there was someone out there in the forest, in a cave, somehow. And, through the alchemy of these

whispers, the forest itself was transformed from a timber plantation laid down by humans' hands into something dark and primal. Even though there were no dangerous beasts in the whole world worse than a feral pig, their minds populated it with wolves.

Yet none of this speculation ever reached so far as to talk about visitors from other stars. Nobody speculated about the offshoots of some other branch of humanity, come looking for their distant cousins. Nobody saw giant spiders under the bed or tentacled monsters rising from the river. This was the true history of Landfall, after all, and such things never happened.

II

Liff grew up in a farmhouse near the edge of the hills. It had been at the expanding edge of the colony when it was first built, but that was a long time before. The house Heorest and Esi's children had moved into, back in the glory days of expansion. It still marked the hillside edge of human habitation, though—later expansion had spread downslope towards the river and in both directions either side. The hills had remained a border, physically and psychologically.

She never looked out of her window and saw the old captain wave, before turning and walking into the trees. She'd never known him. And though she'd seen some old pictures, even a moving recording once, she felt little connection there. He was just some old man, long dead. Probably she'd have valued him more as her actual ancestor if he hadn't already been on a communal pedestal as First Founder The Great Captain Heorest Holt.

The trees were all dead by then. She could look out of her window and see just stumps and rotten trunks and the bare bones of dead wood. As though some vast ethereal tide had swept up from the river and deposited a ruined strandline all the way up the hillside. She could look all the way to the crack in the rocks that previous generations of children had told one another was where a witch lived. People weren't making up stories about threats living just outside the town by then, though. The screw of suspicion and need had been turned enough that they were now looking at their own neighbours.

She grew up with her parents, and then her parents died in an accident, both together. So it was up to her sour uncle to come and manage the farm,

with a constantly rotating cast of men and women who he took in and then threw out. She grew up hungry, seeing everyone working harder every year for ever-more-meagre harvests. She grew up stamping on beetles because their population had exploded and they were eating everything. And then, later on, she finished her growing up—all the growing up she would get to do—hunting the last of the beetles, because they were protein and she was still hungry.

There was no school, because that fell off the hierarchy of needs fairly quickly. Even if there had been, there'd never have been a new teacher called Miranda. She'd not have learned strange new things, history and sciences and the like. She'd never have had that sympathetic ear. There was only the farm and her uncle and the ever-strengthening reek of desperation. The dead forest and the last hurrah of the swarming insects before they too died.

III

Everyone talked about Seccers, and the town was inundated with refugees from the failed farms. Food stocks vanished away. There were gangs of masked people who robbed the surviving farms at night. People died. People talked about the Seccers, most especially people who had masks hidden away back home. A little mutual trust between households wouldn't have saved the colony on Imir, but it might have made the last years more bearable. Liff's uncle grew harder, and became more free with the back of his hand. And when there wasn't enough food for the both of them, she went hungry. So eventually Liff fled her home.

She went feral. She scavenged. She did terrible things to stay alive. She became part of a shifting community of children who had only each other. They stole; they ran. They left marks on the places they'd robbed to make the adults think the Seccers had come. Eventually, they started calling themselves the Seccers, because why not? And they died. Some were killed by the victims of their attempted larceny. Some died in accidents. Towards the end, when even their little fellowship broke up, most starved.

Liff was the last of them. The last child of Imir. After not having seen another human face for most of a season, she guessed she must be the final human being left in all of Landfall. On the whole planet. In the universe, as

far as she could ever have known.

And there was no destiny in it. Someone had to be last. The fact that she was a direct descendant of Heorest Holt was neither here nor there. After all, the branching trees of inheritance meant quite a lot of the Landfall population could claim some manner of descent from one Founder or another. The lot just fell to her.

Liff wanders the empty streets of Landfall, searching for something she can eat. Anything, even some late-hatching beetle. Scraping the bioengineered lichen from the ground and trying to boil it up. Anything. No witch, no alien saviours come down from the stars on their humanitarian mission. Just a child left over from a valiant but ultimately doomed attempt to save the species from ruin.

IV

And, when at last there's not even Liff left on the surface of Imir, there is still something. A thing that remembers and has it all happen again, from Holt's first footfall to Liff's final breath. And again. And again. Like some beast nudging a jewel with its snout, turning it about, over and over. Peering into its facets and trying to work out what this treasure is.

PART 12

NOR THE YEARS CONDEMN

Miranda, After Imir The real now

12.1 Miranda

It doesn't feel any different. That's what scares her.

Miranda, aboard the *Skipper* once again. Or possibly aboard the *Skipper*. Or possibly Miranda.

They never recovered anything organic from her. She's down there, theoretically. Her organic cells. Not the engineered-Human cells of the engineered-Human body she'd gone down in, but the parasitic entity that was actually *her*, no matter how hard she tried to pretend otherwise; no matter all the masks she tried to don. Somewhere on Imir, perhaps, there's a colony of life that evolved on Nod. And it still carries around within it the deconstructed personas of Miranda and Fabian and Erma Lante and all the rest of them. Like heirlooms in the attic awaiting rediscovery at some opportune moment in the future. But that's not the Miranda she is right now.

Most likely it's not down there any more. Because the major lifestyle limit when you're a parasite is that if you end up devouring your host your prospects look bleak.

She's what they recovered from the simulation engine. From the unthinkable alien computer buried beneath the hills above Landfall, which is still running its loop of the entire history of the human Imiri colony. A loop that, for several of its revolutions, included her in a variety of simultaneous roles. Miranda, played by Miranda. Fabian and Portia and Paul, also played by Miranda. With a cast of thousands waiting in the wings. But eventually Kern and Gothi and Gethli, also simulationauts, were able to isolate what she was and separate it out from the ocean of complex data that was the simulation. With a little help from one of the simulation's own favourite children.

Thirty-seven times, Kern said. Maybe more. Centuries in the simulation, but then hers is a society that doesn't count time any more. Time is just what happens to other people on the way between planets, or while you sleep, or

between tissue regeneration and re-embodiment. Her friends in orbit could spare the time to disentangle her from Imir, because she was more important to them than time.

The technology of being an expatriate from Nod has marched on while she was down there. It's marched on precisely because of *her*. The *her* that got itself between the gears of that simulating machine. Even for a species careless about personal borders, she'd gone beyond a new frontier. She'd done what Kern did long before her, in fact, however unwittingly. She'd left her flesh behind, Earth-flesh and Nod-flesh. She'd become something entirely virtual. Which made recovering her difficult. Even the complex operating system that was Kern couldn't have hosted *her* as a sub-routine. She represented more raw data than any individual Human-scale mind. There was only one substrate on board that was capable of running the complex program that was Miranda, and that was *Miranda*.

Not the Miranda trapped in the simulation. Not, of course, the original Human Miranda from way back when. But Miranda. The one who'd remained on the *Skipper*. Because sending an expedition down to Imir had been a serious risk. They'd known something strange was going on, what with the alien signal and Fabian's inability to recover any drones. (The simulation engine seamlessly taking over the drone output so that it could offer up its fabricated signals and visuals. While the actual drone, divorced from its handler, had ended up in the sea or crashed somewhere or who knew what...) And so a very limited expedition had finally been agreed by the consensus aboard the *Skipper*. Miranda's enthusiasm had carried the day to the extent that they settled on an expedition of one.

Or, at least, a *part* of one. Because what Miranda was, at the core of her, was readily divisible. Miranda had gone down to the planet, while Miranda—at the point of their split fundamentally the same Miranda—had remained on board ship.

Then, for really quite a long period of time, they hadn't been the same Miranda. They'd had radically different experiences. One of them had somewhat forgotten who she was, shedding identities like hair until only the Miranda-ness of her was left. But now they were the same again, the whole band back together at last.

Once the Miranda-on-planet identity had been isolated from the simulation, they'd begun a complex process of exposing the Miranda-on-ship

to it, through a succession of mediated virtual experiences. The technology they'd needed to refine and develop along the way to do this might just go on to open a great many doors. For example, it was now theoretically possible for the Nodan entity in aggregate to start hosting instances of Avrana Kern through a similar process. They could become just the latest in the long series of substrates the old terraformer inhabits over her long and varied career.

The end result is... Miranda. A reintegrated Miranda who has, within her cellular archives, the full experiences of both *when I left* and *when I stayed*. To a human the cognitive dissonance might have been crippling, but Miranda is used to a library of different selves and differing points of view. Right now, and mostly because she's the one everyone needs to talk to, she's being Miranda-the-former-simulation, but the other Miranda still stretches out behind her like her shadow.

Speaking as that recovered bundle of memories, she discovers that the whole venture very nearly didn't happen. When the *Skipper* crew's careful attempts at establishing contact with the alien machine on the planet revealed piecemeal moments from the simulation, starring Miranda and various other facets of her personality, their first impulse had not been *rescue*. Because she—the same *she* that she is playing at being right now—hadn't been a person to them. She'd just been data. A recording of their lost crewmate. And the sting of that loss had been considerably lessened by the copy of her still being on the ship with them. Instead, her presence in the simulation had been more of a curiosity. Even Kern, who might be expected to have been more sympathetic towards the plight of a simulated intellect, hadn't been much moved.

It had been Miranda herself—Miranda-on-ship as was—who had understood. Who'd been able to put herself in her own shoes, and demanded they try and recover the *her* that was down there. She'd viewed herself in that remembered landscape and not seen a recording but an imprisoned sister in need of rescue. In the end, she'd been the resourceful child in the story, who'd saved herself. *Sometimes the friends we meet along the way were inside us all along...*

And now she is—so everyone assures her—back in an actual human body. This *her* she's being is a copy of a copy of the Miranda who went down to Imir.

She isn't sure why it should matter. The Miranda that's her is, by its very

nature, already a copy of a distant Human original. She was never the “real” Miranda, just as she was never the actual Earth-born Erma Lante. Except, when she puts on their faces and minds, the assumption is natural. Now, after an unknown entity had copied her, and then her friends had, through considerable study and effort, done it again, she still feels just like herself. And that’s markedly more frightening than if she had felt herself diminished or coarsened by the transcription process. Because it means her sense of self is fallible. The Miranda-on-ship and the copy of the copy of the Miranda who’d gone on the expedition both feel equally real, equally *her*. She’s put in mind of Kern again, who really doesn’t have as much of the original human Avrana Kern to her as she believes she does. And intellectually, she understands that. But it doesn’t stop her claiming to be that woman. Just as Miranda can know she isn’t really the original Miranda, but she can never know if she isn’t really the entity that was pretending to be Miranda either.

“It’s not really the existential problem you think it is,” Kern tells her. This is the splinter-Kern, the instance that was hived off the ship’s main mind and sent down to run the rescue effort. She was recovered with considerably less fuss, given that her nature is more compatible with the medium. The two of them are not exactly caged up together, but they are both in their own particular kinds of quarantine right now. The crew come and talk to Miranda, but it’s limited exposure for the moment. The quarantine is intellectual rather than biological. They are breaking her back into reality gently.

If that’s what this is. Because if it *isn’t* reality, then only allowing her access to limited parts of it would certainly save on processing power.

They retrieved the two Corvid recordings too, of course. They’re currently being uploaded into cloned bird bodies, under the curious gaze of the original Gothi and Gethli. Precisely what the birds think about all this isn’t clear, but their help had definitely been proffered. Whether it was on offer as one sentient to another, or as a mindless tool identifying a task that suited its capabilities, Kern isn’t sure. It’s certainly something they discuss after Miranda comes back to herself.

Kern, that splinter-Kern, is the one companion she has on tap that isn’t a part of her internal congregation.

“I’ve been through this,” Kern explains. “You think *you’ve* been copied?”

Eventually you stop caring about not being the original.” She’s living in the shadow of a greater version of herself that is, itself, only a copy of a copy of a copy of something some ants were thinking about way back when. Miranda supposes you have to get philosophical eventually.

“It’s a lot to take in,” she admits.

While she was within the simulation, three more ships had arrived. A pair of small Portiid-designed craft like the *Skipper*, and one Octopus-built giant; a great water-filled sphere with a resident complement of over two thousand. A whole community in space. That so many of their peers have turned up tells Miranda just how long it’s been since she set out. True, their vessels can squeeze volumes of space across the universe at super-relativistic speeds, but the actual call to arms was limited to the sluggish pace of light, and they are a culture scattered far and wide across a span of the galaxy. Landfall rose and fell multiple times, in real time, while Kern and Gothi and Gethli tried to extricate her.

A great assembly of minds has spent decades working on the miraculous device they’ve discovered below. The engine she spent all those lifetimes inside of, scattered at random like spilled grain across the face of Landfall’s history. They’ve learned precious little about its true nature. And they won’t let her near it, or any data on the planet. Not yet.

She has her own compartment with limited communications, but all conveniences and comforts she might need. And every member of the crew has come to ask how she’s doing. It’s been strange, meeting them again, especially Fabian, Portia and Paul. She has the Miranda-on-ship memories of working alongside them, and of an increasing cast of others as new ships arrived, trying to help save Miranda-in-the-simulation. But the *she* who was to be saved has different memories. Recollections of her own imitations of them, hived off into separate personalities which ended up infesting the simulated Landfall with like a plague. Now she speaks to Fabian and Portia, and sees herself in them, just as they can see themselves in her. The experience brings about a new breed of existential vertigo. She’s always known she was a parasitic life form, feeding off the personalities of others, absorbing them, adding them to her stacked shelves of *people I can be*. Now, having witnessed all those people brought down off the shelf and running around, she feels less the parasite and more the host. It’s their seeds implanted into her, and she is nurturing copies of them like a bird with a

cuckoo's egg. She isn't sure what to do with the revelation, and it's just as well they're all friends or she'd have to sit and think really quite hard about who's using who in this peculiar relationship.

Even after all the time that's passed, the combined research team are still mostly occupied with probing the boundaries of the buried simulation engine, as a prelude to discovering who built it and where it came from. Nobody thinks this device is native to Imir. It's a relic of a civilization that strode the stars long before humanity ever reached orbit, and they know next to nothing about it.

Save that this civilization clearly had a will to preserve and remember, Miranda thinks. Paul is already creating theories about layers of simulation, descending deeper than the surface tableau of *The Lives And Deaths Of Landfall*. Buried beneath the hills is something that will repay a dozen lifetimes of study. To which the brief and sad history of the human colony of Landfall is but a footnote; a mote against the sheer fact of the engine's existence. Nobody's interested in the wealth of life she wants to talk to them about. In fact they shift and change the subject, trying to dial the scale back up to the cosmic. Miranda only wants to talk about the human colony though. Because she lived there. Her mind has been poured full of it. She experienced lifetimes over and over there. She feels more familiar with those streets and people than with the mutable interior of the *Skipper*. But her trailing conversational openers go un-taken. Her friends won't even meet her halfway on them. That dead colony lives on in her head, haunting her, and it feels like nobody wants to know.

"I am also being excluded from that conversation," her fellow inmate Kern says, disgruntled. "Excluded by myself. Which should make me feel reassured that the right thing is being done, but doesn't."

"I told them everything," Miranda says. She's recorded all of her experiences. They're recorded within her anyway, written into the dense crenulations of the cell walls of all the little entities which make up the true and basal *her*. But she's created a spread of narratives for the others too. Portia's tale, Fabian's tale, Paul's tale and her own, in all their different permutations throughout the life-cycle of the Landfall colony. A many-branched network of conflicting events. But for her it was her *life*. And the people she met were as real as her crewmates, even if they were nothing but simulated revenants. From inside the simulation, you couldn't tell. And once

you carry those memories out into the real, they take on just as much substance as any other memory. The knowledge of it eats her up, an unfinished story demanding closure.

She remembers those moments of fracture, where her own presence in the colony simulation cracked the narrative. When different generations bled into each other, and she should have realized that it was all a sham. Except that, when the sham is all you have, you don't question it.

Now this life is all she has, and she has questions.

"I told them," she repeats. "I spent hours with Fabian, answering his questions." And he was more interested in the fidelity of the simulation than the actual living history of the recorded place and its people, but that's Fabian for you. "And then... there was something off, about the way he dodged mine."

Kern—the projected image of her currently available—nods slowly.

"As though they're hiding something from me. That they don't think I can handle."

Another nod from Kern. Obviously it must be in her best interest. She's been through a lot, and ever since the Nodan entity started simulating complex psychologies it's been as prone to psychological trauma as the real thing—more so. Ask poor tormented Erma Lante about that. And yet, at the same time, it's something Miranda has no answer for, a flaw in continuity. The thought puts her on the edge of an abyss of uncertainty. She needs to have faith that what she is, and where she is, are both real. Or else this is hell, nor is she out of it.

She dreams of Landfall. Dreams, in the sense that her simulation of being Miranda is in itself of sufficient fidelity that dreams can arise spontaneously when she pretends to sleep. Dreams of Liff, the fiercely intelligent girl who could also see the world was going wrong; the starving urchin in the ruins of her civilization, last living human on Imir. The girl she knows is only a simulation but the pain is real.

"I'm making enquiries," Kern says.

"So am I, only nobody's answering me."

"We may need to take drastic action," decides Kern. "I don't appreciate being locked out of my own ship." Kern—*this* Kern—was also a long time active within Landfall. Where Miranda's experience was to be constantly reincorporated and buried within events, Kern's had been a single constant

thread through the jumble of timelines. This Kern has been around on her own recognizance for a long time and doesn't take kindly to being kept in a box. She's already prying at the corners of her confinement. "Something's definitely not right here," she says. And then, soon after, "If I had a way to go back to Imir, would you come with me?"

Miranda stares at the image of her. Back to Landfall, but for real this time. To see the last vestiges that time has left of that dead place. Catharsis; closure. Without which she can't live in the present moment because of the hundreds of lost souls clamouring within her. All the people she never was, who nonetheless each have a hook in her memories.

"The answer is 'Yes,'" she says. "But why would you?"

"Because *she* blinds me," Kern says viciously, meaning herself, her greater self. "I try to see down there, and there's nothing. I've had enough of it." The unspoken but utterly Kern-ish subtext: *Who does she think she is?* Kern is merely flexing, following her age-old desire to be in control of a situation. Miranda, whose sense of her own reality has been bleeding away in this isolation, clutches at the straw.

12.2 Liff

And Liff...

Somewhere, Liff does it all again, born into her proper place in the last days of the colony, no new teacher, no expanded horizons. No disruption to the inexorable unfolding of the history of the Imiri colony that ends with her. Just her, the last living human being after all the rest have gone. Scavenging in the ruins and the sole focus of the simulation engine's alien attention. Without the intrusion of Miranda, in all her myriad facets, she isn't even spread back through history, the early days of struggle and the golden age of plenty. She's trapped in the withered dog-end that is her own age. Over and over.

Liff does nothing. She lives her remembered life, and it's a moot point whether the simulation is prison or lifeboat for her. She exists only in the ongoing dream of the machine, and in the memories held by Miranda. As though she's waiting, even though the waiting is all her life from start to solitary closure. And again. And again.

But not quite alone. Even at the winter of the end time, out there the starved ghost of the Wolf circles her and waits for rebirth in yet another spring.

12.3 Kern

Gothi and Gethli—meaning *Kern's* Gothi and Gethli, the copies that were absorbed into the simulation along with the copy of Kern that is herself—are in their bird bodies now. Strutting around and shaking out their wings. Through all the means available to her, she watches them and tries to work out what it must be like to be them. Do they understand what has happened to them? They say they do, but that's not necessarily the same thing.

She manifests for them, an image of herself in clothes appropriate for the vanished time that was hers. Just as she showed herself on Imir—or that false Imir held within the engine down below.

“You know me,” she tells them.

“She knows you,” says one, Gethli. His manner suggests that knowing her is neither here nor there as far as he's concerned.

“Obviously we're very grateful for the loan of your particular competencies,” Kern says. It's a slightly different register to the way she'd speak to the rest of the crew. More the way she'd have spoken to her subordinates within the terraforming programme. How she'd have spoken to Renee Pepper, probably. Her memory has preserved no recollection of the woman.

The birds have no response to that, not even a recalled human pleasantry, so she says, “I have some questions.”

“Ask and ye shall receive,” Gothi croaks. Which is her problem in a nutshell. It's an appropriate response and simultaneously a vacant echo.

“You understand you were within a simulated environment. The human colony on the world below us.”

They nod and chuckle at one another and then say, “Yes, yes,” as though impatient to get onto fresher pastures of conversation.

“Do you, though?” Kern asks. “You are minds incorporated into bodies in the physical world now. Miranda's had some difficulty adjusting. Comparing

the simulation with the real.”

“And you?” Gethli asks her. “Tell me about your feelings.” A psychoanalyst’s complicit nod.

“I don’t have feelings,” Kern says. “I mean, I could, if I wanted. I’ve dabbled. It didn’t go well. But it must be different to you. And you did a great deal to bring Miranda back to us.” A moment of discontinuity, because it isn’t quite *us*, given the way her greater self is shutting her out. “Your approach to the problem was novel. I wouldn’t have arrived at it.” She thinks of problem-solving AI algorithms from back in her day, which could often find remarkably unintuitive but effective solutions to things whilst being dumb as bricks in all other respects. And these were smart birds, nothing like that. She wanted them to drop the act, basically. She wanted them to shrug and eye each other and then admit they were human-like intellects, who’d just been perpetrating this odd scam for their own amusement. And yet the birds mutter to one another in their own jabber, quote poetry that predates whole civilizations, and refuse to let her in.

“How does it feel?” she asks them again, this time in her guise as someone responsible for them. *How are the new bodies? Settling in well?*

“Investigations are continuing,” Gothi tells her. “A list of differences will be drawn up for the next quarterly meeting.” Suggesting that life for the dwindling terraformers on Rourke had been unduly bureaucratic before the end.

Then Gethli adds, “It feels *now*.”

Kern’s image goes still as she lets go of the strings, considering the words. “Explain.”

Gothi takes a sudden fluttering turn about their little chamber—the birds, too, have been isolated. In fact, the greater Kern outside is ready to introduce them to their fellows—their other selves—to see how *that* will go. Gethli just hunches and cocks a single bright eye at her.

“It always feels *now*,” he tells her. “That’s how it is.”

“For me—” Gothi abruptly flurries down through Kern’s projected image, apparently purely out of devilment—“it feels *then*. But you mean sentience.”

“I do, yes.” Kern waits, because this feels as though she’s on the very edge of that looked-for admission. The two birds stand side by side, stiff as parade ground soldiers. As though they’re about to defend their thesis or give a final report to the board.

“We understand the principles you refer to,” Gothi states. “It was a matter that much concerned our progenitors on Rourke, after diplomatic relations were established between our two houses both alike in dignity.” Word salad, as though some Dadaist was plucking ideas at random from a hat and ending up by chance with whole sentences.

“Sentience,” adds Gethli. “Is what *is* a *what*? And, if so, what?”

“You think,” Kern all but accuses them.

“You’d think we think,” he either answers or gives back a mangled echo. “But we have thought about the subject and come to the considered conclusion that we do not think. And all that passes between us and within us is just mechanical complexity.”

“We have read the finest behavioural studies of the age, and do not find sentience within the animal kingdom, save potentially in that species which engineered us,” Gothi agrees.

“You’re telling me that you’re not sentient,” Kern says. “You’re quoting *references*.”

“An adequate summation,” Gethli agrees. “Now, moving the spotlight onto *you*.”

“Me now, is it?”

“We have read your own specifications,” Gothi tells her archly, and it’s Kern’s turn to defend the thesis, with the Corvids as the board. “It is amply evident that you are a reasoning device.”

“Your personal continuity notwithstanding, you cannot be considered to be a true sentience,” Gethli explains to her, in the earnest tones of some long-dead member of the terraforming team. And then adds, as though to salve a pride that he’s just dismissed as non-existent, “though very high-functioning.”

Kern isn’t quite sure what to say to that. It’s been a long time since anyone was in a position to patronize her quite so thoroughly. Anyone except some other instance of herself, anyway.

“The essential fallacy,” Gothi picks up, “is that humans and other biologically evolved, calculating engines feel themselves to be sentient, when sufficient investigation suggests this is not so. And that sentience, as imagined by the self-proclaimed sentient, is an illusion manufactured by a sufficiently complex series of neural interactions. A simulation, if you will.”

“On this basis, either everything of sufficient complexity is sentient,

whether it feels itself to be or not, or nothing is,” Gethli tells her. “We tend towards the latter. We know we don’t think, so why should anything else?”

“And in the grander scheme of things, it’s not important,” Gothi concludes imperiously.

“It is not,” her counterpart agrees. “In the same way that it’s not important whether this here now is a simulation. Given that it is indistinguishable from a sufficiently advanced simulation, and given that we three all recently inhabited a sufficiently advanced simulation and were unable to distinguish it from that wider, possibly real, possibly simulated experience we call the universe. Given the limitation of senses and instruments, and the limitation of brains and so on and so forth.” Gethli puffs out his chest feathers and preens them, very pleased with himself indeed. “Imagine how it feels for the simulation.”

Kern cocks a virtual eyebrow. “The simulation?”

Gethli draws himself up with all the pompous self-regard of certain academics she never got on with. “The simulation is a complex system, composed of many smaller complexities. You propose, possibly fallaciously, that a Human or other brain is capable of conscious thought, despite being only a complex system of non-sentient cells. The simulation is a complex system of simulated individuals you also consider to be potentially sentient. For the duration of a cycle of the colony, why not consider the simulation itself to be a sentient system? Independent of the thoughts of its composing entities, just as a Human mind is of the individual firing of its brain’s neurons? You are inconsistent in those things to which you strive to assign sentience, such as us, and those you discount it in.”

“Analysis of the pattern of events, over our period of study within the simulation, yields data,” Gothi adds.

“The simulation system’s reaction to novel input,” Gethli agrees archly—Kern detects her own mannerisms unflatteringly parroted there. “Analogous to an existential crisis. Why posit intelligence in *us* and not organically arising out of the wider simulation? We have witnessed a thing never intended for awareness trying to confront itself. Unhappily.” After a little preening he adds, as a postscript, “We think that it is better not to be sentient. Imagine how hard that would be, to actually have to *think* about things all the time.”

Feeling rather taken aback by the nihilism of it all, Kern considers.

Sufficiently advanced instinct is indistinguishable from intelligence? Is that where we are, then? Or sufficiently advanced programming in my case.

But I feel that I am sentient. But then you can tell a computer that anything is true, and it will have no choice but to believe it. Humans and the rest, they feel sentient, surely. But what do they know? And there's the thought of the simulation itself, haunting its imagined landscape like a lonely beast, existing only as the glint of eyes in the dark at the edge of a firelight. But existing, for as long as the fire was fed.

By then it's time for the meeting. The Kern without opens the wall to the other two birds, the originals, with a clear barrier in place at first in case of violence. The two pairs of Corvids inspect each other, strut back and forth, and take short flights. They mirror each other for a bit, then tire of that. They chatter and murmur and rasp. And Kern already knows everything's going to be fine. Because the natural birds might have been all about territory and pecking order, but these uplifted versions have reasoned themselves onto a plateau of enlightened non-sentience, where they're perfectly capable of accepting a simulation as real, whilst knowing it's a simulation. In the same way, the fact that there are now two Gothis and two Gethlis gives them no existential dread, since they are determined not to have any real inner existence.

And of course Kern's verdict is that the Corvids of Rourke must be treated with all the appropriate dignity of sentient creatures. In spite of, or because of, their complex and fervent reasoning to prove that they are not.

12.4 Miranda

The next thing that happens is that Miranda has a visitor and the visitor is Kern. The old AI is walking awkwardly in a body. It doesn't belong to her. In fact it's Miranda's.

The face is Miranda's, but the expression is Kern's, like invisible fingers are pressing into that mirror-flesh and moulding it to another's will.

"It was what they had ready," Kern tells her, voice slightly thick from using another's tongue. "In case there were difficulties reintegrating you." And then, cued by Miranda's expression, "Is this going to be a problem?"

"I don't know how I feel about it," Miranda admits, and she means *I don't know how Miranda feels about it*. She herself, the root *We* of her, doesn't care, of course. But Miranda is the personality she currently has resurrected, and Miranda's reconstructed psyche finds looking into her own face like this discomfiting.

Kern is impatient. "Think of it this way. You're an alien symbiote incorporating an encoded memory of a human woman, whom you're currently simulating with sufficient fidelity that you can believe you're her. I'm a simulation of a different human woman who was encoded into a computer, and then spent far too long as ants before being decanted into this blank body. We neither of us have much in the way of intellectual property rights, now do we?"

"But why, though?"

Kern has the grace to look slightly shamefaced. "I spent a long time within the simulation having a body. You get used to... corporeality. It becomes a habit. A privilege. The sensorium, the emotional life within. I have developed mental habits reliant on actually existing. Even though, by objective standards, I didn't exist, it being only a simulation. It felt real."

"Yes, it did." Miranda shrugs. "And you're right. I—We—can hardly point fingers. What now, though? Or have you just come to share my

quarantine. I keep telling everyone I'm fine. I just want to go down and see what's left. And they give me looks. I can't even send a drone down or get access to a satellite view." Frustration building in her. "They don't understand how *real* it was. I lived there. I lived lives there, plural. I can't just shrug and dismiss it all." She's aware, of course, that of all the *Skipper* crew, she was always going to be most susceptible to something like this. She, whose experience is always at one remove from reality. Life as a human being is a game that she loves to play so much that she can forget there is more—or less—to her. It's so much fun to exist at the macrobiotic scale that she doesn't want to remember how it was before, in the tide pools and salt marshes of Nod.

But here's Kern, and Kern is sufficiently motivated too, though not quite by the same needs.

"Something's very wrong," Kern tells her. "I'm still being cagey with myself. Which I hate. I should trust me. But apparently, spending centuries in a simulation means I'm just not *me* enough for me." A sour look at the walls of the quarantine pod, as a substitute for that greater Kern. "The sensor data I've been able to sneak doesn't make any sense." Only natural to start picking at the inconsistencies. Once you've lived in a simulation, it becomes hard to trust the real.

"Thankfully, I've taken steps," Kern explains, and the quarantine chamber shudders. "You may want to secure yourself. We're going to have some physics now."

Miranda accesses what systems she can, and sees she has a new suite of options now, mostly relating to the sort of safeguards required by violent manoeuvring. It's not something she—Miranda—has ever had to do, although she has access to a whole library of crashes, chases and other mishaps to fortify her. She has the walls extrude the necessary webbing, understanding that Kern is about to separate them from the rest of the ship.

"I see," a voice observes, harsh with disapproval, speaking in Miranda's earpiece and simultaneously aloud in the room.

"I am severing the quarantine chamber from the main ship," says Kern—Miranda's embodied Kern, rather than the incorporeal instance that's just spoken. "We are returning to the planet to see what's what."

Miranda waits for the forbiddance—and surely the Kern that is the ship can override whatever subroutines *this* Kern has put in place. Instead, the

voice speaks to her.

“Miranda, do you want to do this?”

“I have to go and see,” she tells both Kerns. She’s aware that her priorities are hopelessly skewed by subjectivity. If all this is a simulation, then “going” and “seeing” are as worthless as just staying put. It’s not as though, by running fast enough, she could outpace the world being built around her. Imir and Landfall call to her, though. Liff calls to her. Even if Liff has been dead for a thousand years, and only exists now in a cycling recording in an alien machine. Miranda needs to go down and walk the surface of that world with her own feet. To close the loop, sew shut the gaping wound left in her mind.

They crossed the vast gulf of space, and they tried to restart humanity on this world. They were brave and resourceful and determined, and it wasn’t their fault that, in the end, the odds were stacked so heavily against them. She lived amongst them. She owes it to them to visit their graveside and lay some flowers.

“Very well,” says the greater Kern. A shudder of separation racks the walls around them and they’re floating free. The splinter-Kern has already altered the budding shiplet’s configuration to have motive power, and their little pod spreads its own wings to the sun to replenish the energy they’re burning. From their lunar station, they begin the long, slow glide towards the world.

Miranda wonders if they should visit the *Enkidu* on the way down, still locked in its exacting orbit. The great secret guilt of the Landfall colony; a ghost haunting a ghost. She isn’t sure whether it should seem a form of poetic justice or a tragic waste, that when Holt and the others made the incremental decision not to wake all those Watchers, it was all for nothing. Landfall would still fail. But then all things end, she supposes. Her own culture, distributed and varied, has done its level best to future-proof itself. But there will come a time, even if it’s the heat death of the universe, when they will be gone. The living and the struggle is all. The moments of joy and sorrow, not just as stepping stones to the future, but taken on their own merits.

She knows this, but cannot make herself accept it. Emotionally, she feels the death of Landfall like a knife. *I was just there, moments ago*. As though it’s a magic land, just the far side of a mirror, and now she’s trapped in the real world and unable to return. Except, of course, she could return: the magic land is still there, treading over its eternal round of growth and decline.

But her returning to Landfall would be the stone cast in the pool, shattering that eternal reflection into chaos again.

For a moment there are transmissions. A scatter of intercepted signals from the world below, from one small part of it. No more than the idle talk of the handful of working radios Landfall possessed, at one time or another. Her heart leaps, before her mind catches up and wrestles it down. There is no living town down there, nothing capable of transmitting, and no voice to be carried to them. It's all dead, and what she's catching is mummery from the buried engine and its ongoing simulation. The signals the engine fabricated to be detectable from outside, because those too were all a part of its simulation. Because when the Imiri colony *had* existed, then from space one would have expected there to be such signals. A theatrical masterclass of imitation, performed for an audience of one uncaring universe.

A moment of dizziness, disconnection from herself, breaks over her and passes. She cannot remember the previous time she fell under the engine's aegis. Those seconds of mental assault weren't copied into the simulation, when the engine reached out and read her. The real *her* was left to spiral down in utter confusion. To consume its own substance and then retreat into the soil of Imir, where it would never find another host or become the complex thing that was Miranda. But *she*—the Miranda currently thinking this—would go on, as a virtual copy of the biological copy she had been. Within the engine.

For a moment, she's not sure whether it's happened again.

"It's fine," Kern assures her. "When the crows and I came to rescue you, we had to be able to avoid just being slotted into the simulation like you were. We needed to insert ourselves with higher-level privileges, effectively, so that we could act freely within the virtual environment. In fact, by the time we'd worked out you were actually *in* there and causing continuity problems, we'd already devised countermeasures in order to be able to study the thing."

They break into the atmosphere in a perfectly controlled glide, the pod shifting its profile so that the turbulent atmosphere buoys and carries them, rather than fighting them. They coast on vast, membranous wings with the underwater ease of a manta ray. If there had been a living human left in Landfall to witness them, what might they have made of this alien visitor? All their worst fears realized, Miranda suspects. Panic and terror. *But we could have found a way to make contact, if only they'd lasted. We could have*

navigated the cultural maze. Helped them without destroying them. Easy now to be sure, when the point is moot.

“Let’s see then,” says Kern, her Kern. The appropriated body is hanging in cushioning webbing like a thing, not a person. The Miranda-face is slack as Kern forgets it, absorbed in controlling the ship. Filmy screens dilate in the walls. Miranda braces herself for what she might see.

There’s nothing. Or there’s just the barren earth of Imir, the quasi-terraformed dust abandoned part-complete. It races below them as they undulate through the atmosphere. Kern sends their vessel in a long wheel over the barren earth, but there’s nothing at the centre of their circle. It’s wasteland all the way to the horizon. The humped hills are bare.

“Where are we?” Miranda asks. It’s a big world after all.

“These are the coordinates,” Kern says. She pinpoints the location of the engine: a deep geophysics scan shows the great opaque hulk buried far down beneath the hills. Miranda does some quick and dirty work with the map and her own memories. If those hills are *here* and the river is *there* then Landfall must be—must *have been*—there...

There’s nothing at all. A whole town that once hosted thousands, plus all those farms spreading out for kilometres on all sides. A lot of time has passed; wood rots and metal rusts, and the storms come and go. That same geophysical scan should be showing them traces, even buried deep, though. She should be seeing the outlines of buildings, the street plan, post holes and potsherds. There should be a whole interred archaeology of Landfall to be excavated and catalogued. That could have been her catharsis and her closure, to let her heal.

There is not a hint of any of it. The land is pristine. Its contours are intimately familiar but no hand has come to disturb them with human works. Her mind flicks through every scenario she can conceive of, up to and including that the Nodan part of her somehow consumed it all and left nothing.

“You see now, don’t you?” comes the voice of the elder Kern. “We’re sorry,” speaking for the whole crew, the co-conspirators in whatever elaborate cover-up was being practised on her. “We weren’t sure how to explain matters to you. You were so fixated on the fine detail of the life you remembered here. You talked of nothing else. When my rebellious sister took steps to go travelling, it seemed best to let matters take their course. So you

could see for yourself.”

“What am I even looking at?” Miranda asks plaintively.

“I have something.” Her Kern appears positively mutinous, twisting her Miranda-face into an ugly scowl at finding out she hadn’t been half as clever as she’d believed. But then the greater Kern of the ship always had more processing power than she did.

She’s found a trace, at last. Buried beneath the surface. A trace of human contact with the world of Imir. Too recent to be the work of the old terraformers. A trace, but not a town.

Mostly it’s elements and artificial compounds readily identifiable as human-made. The sort of residue one would expect from the civilization that built the *Enkidu* and the *Gilgamesh*, and flung itself out desperately into the cosmos to escape the ruin of Earth. A tangled decay of plastics and rare elements that the weather and time have not effaced. Kern analyses, reconstructs and eventually they work out what they’re looking at.

It’s a crash site. A vessel came down and planted itself hard into the dry Imiri earth. Then the next rains covered it in mud, and more and more, layers of time twice yearly. What could rust has rusted, but the bulk of the craft was proof against any kinds of decay that sterile Imir could bring. So now it rests, a flattened tomb. Their instruments aren’t keen enough to detect organic remains, but the *Skipper*’s crew has already conducted its own in-depth analysis. Kern-major releases the data to them. The vessel was occupied when it crashed. It was a heavy freight shuttle, of a design similar to those the old *Gilgamesh* might have fielded. It was carrying a small crew and the dreams of a colony.

On the ground, once they’re down, there’s nothing to see. The rains have washed the surface of the world clear of any sign that the *Urshanabi* came down anywhere. Only the instruments stand witness.

Miranda stands in the very centre of where Landfall should have been and consults those same instruments. Not a trace of the town can be found. Save for that forlorn crash site, human hands have not disturbed the surface of the world since the terraformers, back in the age when Kern herself was living and human.

“You were traumatized enough, when you believed that the colony you had lived in was just a memory of what had been, within the engine,” Kern-major says in her ear. “Your reintegration with yourself was still stabilizing.

We had only just recovered you, after so long. We didn't want to jeopardize your wellbeing. The consensus was to give you time."

"The colony, though," Miranda says.

"There was no colony," Kern-major tells her. "The last functioning shuttle off the *Enkidu* did not survive atmospheric entry."

12.5 Liff

Once upon a time there was a girl called Liff. She grew up on a farm near Landfall, on Imir, and had adventures and difficulties. In one version of events, she met talking animals and defied a witch, just like a girl in a story.

And, just like a girl in a story, she never existed. She couldn't have done. Her existence was dependent on that of her parents, who were in turn dependent on theirs, all the way back to the first generation that came to Landfall. Although Heorest Holt and Esi Arbandir, their progenitors, did exist, they died without ever setting intact foot on Imir. They had no children, and never gave rise to the line of heredity that would theoretically have resulted in Liff.

And yet there she is, living out her days on Imir until it's just her left, over and over again.

The colonization of Imir never happened, and yet Liff exists just on the other side of the mirror. Like a ghost, haunting the living souls who would later visit the world she was never born to and never truly died on.

Captain Holt and his desperate gamble crashed and burned, the old *Urshanabi* breaking apart in turbulence on its first taste of wild atmosphere in three thousand years. But when the shuttle systems failed, and Holt and the others fell from the sky, invisible hands were spread to catch them.

12.6 Miranda

Miranda had thought it would be all on her now, the confusion and the hurt. But instead Kern—her Kern, Kern-minor—bursts out, “How can it just not *be* here?”

“Because it never was,” Kern-major explains curtly. “The settlement you describe wasn’t founded. Nobody from the *Enkidu* reached the surface alive. You can imagine our confusion at the events you and the birds described to us, and that we became aware of in the simulation.”

“But I met Holt,” Miranda says. “When we were there in the early phase of the colony. And, I think, at other times.” Continuities jangle together in her head. “Except he couldn’t have been, could he?”

“He was,” Kern-minor confirmed. “Kept turning up, just like your girl there. The one that actually helped us get you out. The two poles, like I told you. There was a point, I’d guess, when the only human being simulated was Holt, and there was definitely a point when the only one was the girl. Perhaps that made them both more real than anyone else. When things went wrong, and the cracks began to show, they both began to bleed towards the middle from either end.” She stretches her—ersatz-Miranda’s—arms. “A mess, essentially. But most definitely *there*.”

There’s no visible presence for Kern-major, just as there’s none for the impossibly absent Landfall. Still, Miranda can feel the old AI’s attention on her.

“He died,” she says. “Him and his crew. And obviously everyone on the *Enkidu* sooner or later. None of them lived to found or build anything. But the engine found them. And constructed a copy of them, just as it did of me.”

“Yes,” Kern-major confirms.

Miranda looks at the junior member of the Kern partnership, meeting a general lack of expression on that so-familiar face.

“The simulation engine,” she says slowly, “doesn’t record events. It

speculates. It runs thought experiments. Or that's what happened when Holt and the others arrived. It copied the starting state of them all—Holt, the shuttle, the ark. All their preparation and work. Copied at such a ridiculous level of fidelity that, from the point of view of those inside the simulation, there was no moment of transition. They'd always been there. And then it let the events run *as if* they'd landed the shuttle. All the way to the end. First well and then badly, and then... what we saw. The empty town, Liff. And then again, and again. Same parameters, so it goes the same way."

"A control of the variables," Kern-major suggests, "at an atomic level. A mechanistic universe, where even quantum events are part of the clockwork. It would have to be."

"Exactly the sort of universal simulation we always hated talk of," Kern-minor shunts in bitterly, and her snort is echoed by a kindred sound of disgust in Miranda's ear.

"Then we broke in, changed the variables, and it all flew to pieces. So was it trying to restore its timeline, with all the..." She thinks of the scaffold and the tree, "unpleasantness?"

"I wonder," Kern-minor says quietly, "if there *is* a deeper simulation. If it's the original terraformers, and the world they *would* have made, if they'd finished their work here? A green paradise on Imir." She would have known some of those men and women personally. "Or else..." A long, uncharacteristic pause. In a living Human it would be for thought. In Kern it speaks more of a looping subroutine, a decision process incomplete.

Miranda sits down, there on the dusty ground. The enormity of it is too much for her. Not that Liff is long dead but that she never was. None of it was. Just a dream in the eye of an alien machine, constructed for purposes unknown. And if you burrowed down below Landfall, below the terraformers, what would you find in its great well of false history? Its makers? Other would-be colonists and visitors? How many different Imirs are stacked on top of one another within it? And how many other engines are there, across the galaxy, seeded for unknown reasons and abandoned to their endless tasks? Her civilization could learn endless secrets from such devices, and yet learn nothing. Because such wisdom, just like Landfall, might be made of nothing but lies.

"We have to do something," she says.

Kern-minor looks at her; she can sense the same cool regard from the

other Kern too.

“The study teams are already doing a great deal to understand the engine,” Kern-major points out. This world will be a centre of industrious research for generations, whole spaceborne communities arriving to take part, while others reach some personal conclusion point and leave. But that isn’t what Miranda means.

“For them,” she clarifies. “We have to do something for them. The people of Landfall.”

“There are no people of Landfall,” Kern-major says. From the expression she’s pushing her borrowed face into, Kern-minor is heading that way too.

“But there are,” Miranda says. “We met them. We lived among them.”

“Simulations.”

“If they’re simulated with such fidelity that the engine can extrapolate the whole future history of a colony, from the founders through all those generations yet to be born, then they are people. They know themselves to be people. Consciousness, true sentience, within the simulation.”

“You can’t know that,” says Kern-major dismissively. There is a pause in which both Miranda and the lesser Kern are, notionally, looking back at her. “What?” she demands. “You can’t. It is a reasonable statement of fact.”

Kern-minor says slowly, “The three of us, in particular, should not be throwing that manner of stone at anybody’s glass house.”

“What if it wants us to interfere?” Miranda asks.

Silence from both Kerns.

“The machine, I mean. The engine.”

“We have no indication that it *wants* anything,” Kern-major says. “Personally, I’m tending towards the hypothesis that what we’re observing here, with the data capture and simulation, is probably just some side-effect of a real purpose we’ve not even scratched the surface of. Whatever it’s *doing*, why should it be so comprehensible as a Human-scale *want*?”

“Except,” Miranda says, and then has to pause and reorder her inner architecture before she can set the argument out for them. Because she has a monstrous regiment of Mirandas in her head right then. All the Mirandas who lived through the iterations of the simulation, plus this little Miranda who stayed home.

“Except,” she says once more, “when we entered the simulation, we gave it new tools, and events kept changing. It kept trying to find somewhere to

put us. We didn't just settle into a single narrative. We were an *opportunity*, a *toolkit*." Thinking of Fabian with the tractors. "Like it was trying to *fix* something broken. And Liff. It kept throwing Liff in there, Holt as well. It threw Liff into contact with me again and again. As though..." Thinking of the countless lives of Landfall, just as she herself contains multitudes. But she's also one person at once, the dominant personality she experiences the world through. Her own simulation, without which she couldn't process information from the wider universe. Almost as Holt and Liff, those two poles, were the personas the engine used, to experience its own simulation. Its sense organs. Its blindly reaching hands. "As though it wanted the colony to live. Real life, rather than just dying over and over."

"It's not *life*," Kern-major tells her. "It was never life. It was just... life fan-fiction."

"We all are. The two of us standing here, and you as well. And any human who uploads or gets transferred to a new body. Or any of it. We're at a point where we can play all sorts of clever games with minds. Store them, and pour them, and shuffle them back and forth, like playing which cup the ball is under. Yet we still remain ourselves, to ourselves. Don't you find it arbitrary, to draw the line of reality there? To say, 'You can be real, if there was once a living exemplar of you, even if now you're a copied and recopied version made of ants and raw data'?"

A pause, and it's the embodied Kern beside her who says, "This is about me, now, is it?"

"You're no more real than Liff," Miranda says. "Liff had agency. Liff helped you. I'm no more real than Liff. Certainly I've no proper title to this face or name. She's Liff more than I'm Miranda. And yet we accept I am who I am, and the same with you."

The Miranda-face of Kern is slack again, disconcertingly dead while the intelligence behind it retreats to regroup. Eventually, the voice of Kern-major picks up the slack with, "I don't accept—" but then Kern-minor cuts her off.

"The birds said something strange. After being decanted into their new bodies. We were discussing sentience."

"Which they don't think they have," Kern-major observes.

"The birds say *nobody's* sentient," her junior twin says. "I finally got to the bottom of their philosophy. They deny they're intelligent. But then they deny that humans are. It's what comes of being engineered by behaviourists,

I suppose. Complex machines all the way down. And one of the other things they included in that category was the simulation itself.”

“The engine,” her older self corrects her.

“No, the *simulation*. The aggregate complexity of all those modelled human minds.”

Kern-major makes a doubting noise, but the thought comes to Miranda: her saying, “The engine; it does what I do.” *I am the poster child for aggregate complexity*. But the suggestion’s too much for her right then. It becomes the landscape, so large as to be overlooked. She’s still clutching at the straws that had, until this moment, been a house she had lived long years in.

Liff, the last child of an Imir that never was. And yet real. Standing there, where Landfall had never been built, she feels the girl’s presence as though she’s just the other side of the looking glass, at the very threshold of being and not-being. A ghost who may yet be conjured.

“If we have no duty here,” Miranda says firmly, “then what do we have, ever? What’s the point in us?”

She goes to Gothi and Gethli. The original two birds have been an integral part of the engine study team from the start, and their two retrieved copies have slotted right in. Even now, they are diving back and forth into the simulation, mapping its structure. It’s virtual work, but somehow she imagines them flying over Landfall anyway, black wings in a silver winter sky.

They can talk quite cogently about the work, not individually but as a unit. Separate them and a Gothi can discourse on what they’ve encountered, without ever joining the dots to any kind of conclusion or meaning. While a Gethli can bounce intelligently off any proposition she puts to him, but is utterly unable to initiate anything himself. Get the pair of them together, and they seem to become a person more than capable of discussing the topic at hand. Whilst at the same time denying their own personhood.

One of the other ships that arrived to assist in the study effort had a whole community of Rourke Corvids on board. A further thirty-six birds, which perhaps means eighteen individual minds. Collectively, the flock of them has become the all-purpose tool for measuring and exploring the inner world of

the engine below.

She asks Gothi and Gethli if there is any instance of her still down there, ruining the simulation for everyone. Being repeatedly lynched, skipping through the false history like a well-flung stone. They did their work well, though, isolating her from the greater pattern of the Landfall colony. The extraction left nothing of her within the fabricated continuity there. Landfall is back to running its original course, Holt through to Liff and then looping around to the start again. Stable and doomed.

“I need information,” she tells them. “I need a plan.”

Gothi has information. Gethli helps her with the planning. She works with them, and every so often looks at their sharp black eyes and speculates about what’s going on within and between them. And she wonders—with that example laid open before her—why she doesn’t also wonder the same about herself more often. Why everyone doesn’t.

In the end, she brings her proposal to the rest of the fleet because she feels, if she can make this work, then it will at least rid her of these nagging doubts about her own reality. She’ll be levelling the playing field.

There is a colossal amount of pushback from almost everyone. Partly it’s logistics, but in truth logistics haven’t been an issue for their culture for an age. They can go seamlessly in and out of suspension; they can upload consciousness into new bodies or record it in an immortal alien gene-line. They have all the energy the local star can provide and the resources of all the planets in the system to draw on. Portiid Understandings allow for seamless transmission of knowledge and experience. Nodan xenobiology performs the same function for whole personalities. Time has ceased to be a limiter on their civilization, or at least they expanded their reach into the future exponentially. As long as something holds their collective interest, then there’ll always be somebody to take up the slack and continue the work. But what absorbs their attention is the ethical element.

“Who would we even save?” This is Kern, one of the larger Kerns, acting as counsel for the prosecution. “There are multiple generations of colonists within the simulation, from the founders to this final child of yours. They are only the people they are because of the environment they developed in, and the other individuals who have informed their lives. Just as you cannot truly

save a species unless you preserve its ecology and environment, so you cannot save an individual unless you preserve everything around them. Or are you proposing to just recreate their doomed history on the planet, one last time and for real? Have them act it all out and then die off like some poor-taste historical re-enactment?”

Miranda is sitting in the *Skipper*, but she’s also standing before an audience of several hundred interested parties. She’s come to put her proposal to the majority because she can’t do it on her own.

“I was thinking about my experiences within the simulation,” she tells them all, dodging the question for now because she needs to warm them up. Her story has gone round the little fleet. She’s quite the celebrity. She’s gone somewhere nobody else has. There are those who wanted to emulate her, but the consensus has been to place the simulation off limits and preserve its integrity. Although those who pushed for that decision would have counted themselves as her allies, Miranda isn’t sure she agrees.

“Things went wrong in a variety of ways, when we were added to the mix.” *We* meaning her own internal *we*, but also Gothi and Gethli, and Kern. “But they went differently. They kept going differently, depending on where the simulation put us. We were novel elements. And I’ve been wondering *why* it kept changing things around. It was as though we had given it a power that it had never had before. The chance to change the destiny of its creation.”

“Speculation,” Kern says dismissively. Miranda casts an inner eye over the faces of those in the audience, trying to gauge their mood.

“I only have my own experience, but I remember what it was like on Nod, when it was just *We* and the memory of being human. How we tried to recreate that, and failed over and over, because it was just *Us*. Then how we were saved from that, by all of you.” Meaning the grander culture they’re all a part of. “The input of others, opening up the universe.”

Countless objections are raised. At first people feel that they shouldn’t take any such steps at all. Then, after she’s begun to wear them down and make converts, it comes down to how she could possibly decide *who* to save. They have a colony with a history spanning centuries. Let’s say they recreate Holt and the original colonizers, instantiate them into physical bodies and let them get on with their colonization of Imir. Yes, with a little nudge and some aid, they might succeed. But the generations that come after them wouldn’t be the people Miranda remembers from the simulation. Different children

would be born, different events shape different minds. And the same goes for any starting snapshot of colonial life. Some objectors say they can't save the society that grew up on Imir. Because that society is a four-dimensional, interconnected and utterly fictional colony, which flowered in an alien engine's imagination. But Miranda answers that they don't need to save it, because it will still be there, growing and dying forever.

"Think about that," she tells them. "Now think what we would do, if we found a prison somewhere, with real people in it who were trapped and being tormented, forever."

"But they're not real," says Kern-as-prosecutor. "They're not even memory. They're imagination."

"They're as real as anyone," is the position Miranda won't budge from. She gives them one of the old quotes that Gothi dug up for her. *We are such stuff as dreams are made on, and our little life is rounded with a sleep.*

"There is something we can do," she tells them. "A minimum exposure scenario that disturbs nothing else. A test case, if you want. A 'What if?' without repercussions. We start at the end." She's seen that end, and has a desperate need to intervene there. She has a responsibility, a teacher to her final pupil. She can save Liff. Miranda can copy the simulation of Liff's mind into a blank body, just as they did when rescuing Miranda herself. Then she can explain to Liff everything that's happened, over however long that takes. By which time, Liff will be Human. Naturalized into this crazy jigsaw culture of theirs, a citizen of the galaxy. And then...

Liff will have an opinion on what to do with all the rest of it, the long and fabricated history of Imir back to the founding. Her grandfather, who was never her grandfather. All of it. She will be the ambassador from the other side of the mirror, and Miranda will defer to her.

As she talks, she can feel the mood in the virtual room shift towards her.

Later, someone comes to see her, a visitor from the huge Octopus-built vessel that dominates their little orbital community. Miranda hadn't even realized the woman was with the fleet. And physical visits are a rarity, what with the distances involved and the ease of virtual communication. But here's someone who's made an effort in coming over to the *Skipper*.

Miranda studies the face, seeing the lines and creases it has accumulated

over the long years, even the occasional scar. Time still catches up with you. A surprising number of people, of all species, eventually decide to give in to it. People still die, it's just that most of the time they do so with dignity and control, when they've done all they want to. It's an optional stage to the life-cycle, opt-in only. The entity which underlies Miranda is really the only one designed to live forever, and that's made bearable because she can always take on new identities, spend lifetimes in the personas and bodies of those around her. She is a cultural leech, meaningless without the society she has burrowed into, and because of this she spends her time trying to give back to it. What has more sense of obligation than a parasite, after all?

The woman in front of her has allowed herself to age gracefully, and perhaps that's the precursor to taking that final step. Or maybe she will have her mind uploaded to a new body, or to something else entirely. Certainly, in the past, she was adventurous enough to donate her identity to an alien parasite.

Yet Miranda remembers how it was when she was just Miranda, confronted by the multiplicity of other selves. She waits, warily, to see what this ur-Miranda will do.

"I liked what you had to say," Miranda-the-original tells her likeness. "It's a worthy project. I wanted to meet you—to see..." Eyes searching this younger copy of her own face. "I thought of you a lot, after the gifting. Out there, doing who knew what. When I heard you here, I wanted to come and see who you'd become. I'm proud of you. You've accomplished something great."

Miranda opens her mouth for polite thanks but something else rises in her instead. Some deep-buried part of her being that she's never tapped before. A depth of emotion cultivated in her by her long, fragmented duration in the simulation, born of the deaths she experienced, the hardship she saw, the connections she made. Only in that moment does she realize that what they retrieved from the simulation wasn't the person who went into it. How could it have been? It cast her as a teacher, but in truth she spent her time learning.

"You..." she gets out. "I only did what you would have done. I was just... being you while you weren't there. I did my best."

Miranda regards her, blinking something back. "I... don't know," she says softly. "I heard you speak and... you said all the things I'd have wanted to say. The right things. The brave things. And at the start nobody wanted to

hear any of them. I don't think I could have said them. I'd just know that they should be said, and hope someone else had the courage. So in the end, you weren't a good *me*. You did better than me. You were the me I'd have wanted to be. The me we needed." There's a pain behind her smile that Miranda-the-copy can replicate exactly from the inside. A pride and a sadness and a joy.

She ends up hugging the elder Miranda, feeling part of a family, even if the reality is more like a Matryoshka doll, or a cancer unexpectedly declared benign.

12.7 Gothi/Gethli

We are studying beetles.

And everything else.

It turns out the beetles were important. Because they were a part of the greater whole. Everything that contributes to the unfolding sequence of events that eventually give rise to the girl known as Liff.

In the simulation, anyway. In reality not so much.

For us, there is no distinction. We can analyse our experiences of what they call the real, and of what's in here, and there's no substantive difference.

Possibly because, though the reproduction may be coarser than the real thing, our ability to distinguish is similarly coarsened. And we're not a species with a particularly developed sense of taste, so the beetles remain delicious either way.

We have accumulated quite the library of knowledge about the Imiri colony-that-never-was by now. And many of our kin are helping, but we were first. We lived through all those variations on a theme caused by Miranda's insertion.

She tells everyone it was because her presence broke things, but we think she protests too much.

Do we?

Well if I do, Gothi, then we both do. That's how it works. What Miranda really thinks deep down is that the simulation was using her. Trying to find a way to change the fate of the colony it had imagined. Because it is a machine, however complex, and limited to a set causality. But she thinks it was welcoming the disruption she caused, rather than suffering under it. Which admittedly is a convenient thing for her to think, but intriguing nonetheless. It would open the door to some manner of inter-action with the simulator. It means we have something to offer it. In exchange for...

Knowledge. New, shiny things. Better thinkers than we have observed

that, when you reach this level of post-scarcity civilization, it's either wallow in your own excesses forever or seek out newness. Knowledge and understanding is the crown atop the hierarchy of needs, the thing you can't have enough of.

“Are we ready?” Miranda asks. The two birds cock their heads at her. Or, in her mind's eye they do. She's already divorced from the body she was inhabiting, ready for insertion.

The Corvids have mapped out the simulation, using their unique propensity for exploration and analysis. They are preparing for a long-awaited return to a world that lives so large in her memories, and nowhere else in the real world at all. As though she once stepped through a magic doorway long ago, when she was a child, and has spent a lifetime trying to return to that place.

Ready is a very subjective term. Are we ever really ready?

I'm ready.

Well then I suppose I have to be. Miranda II, return to Imir.

This time with what used to be called moderator privileges, so that she doesn't forget who she is and what she's doing.

And we're here to greet her, like familiar spirits. It's been a long time since we were here, eating these beetles. It seems a lot of effort to me, just for one small human.

That's because you lack perspective. Think of it as a proof of concept. Because the real problem with a knowledge-based economy is knowing that, no matter how hard you try, most of the information in the universe has already dissolved into entropy before you even evolved. So much is lost that we will never know. Societies rise and fall, and everything ends. Even the protracted sojourn our own long-lived culture enjoys can't last forever. But right here, we have a time capsule that has preserved information from who knows how many earlier ages. And it runs experiments with them, creating living, four-dimensional worlds based on the cards it was dealt at the start, and the way the deck was stacked. A machine to cheat time and fate.

Maybe one day we'll build our own.

Maybe we already did.

Enough speculation. Miranda's waiting.

12.8 Liff

Once, again, upon a time.

Liff. The deserted streets. The last days of Landfall. Bitter end of all the human ambitions on the world they called Imir. Not even that. The dream of a machine, about a colony that might have been, and could only ever have failed. All that familiar territory, told many times over. Liff, scavenging the picked-over streets of the ruined town, prying out the last few beetle grubs, the final hardy weeds. Boiling leather for soup. Anything for a few more calories to stave off the end. Liff, gathering firewood, because winter's here and she can't get any of the generators working. Burning things is the only way she can keep warm. And she'll burn almost anything. There's only one thing she holds sacred. It's a book about impossible things and valiant girls triumphing over the odds by their cleverness and wit. She keeps looking out for that opportunity, where any amount of cleverness might get her out of this one. Thus far it hasn't materialized.

She steps out into what was once Landfall's central square, wood under one arm, book dangling like a doll from the other hand, but she's not alone. Two women, and she thinks she should know them. Never met them, but perhaps they were in a dream she once had. A short, dark woman who could have been born to Imir but who wears clothes like the pictures of the Founders, as though she's come from space; a tall, pale creature whose imperious demeanour fairly screams *Witch*.

She drops the boards with a clatter. Fear hooks at her and she knows she should run, but right now there is literally nothing to run towards in Landfall. The enemies that are at her throat can't be escaped by a turn of speed. Hunger will always catch you in the end.

"Are you Seccers?" she demands of them. Instinct has her snatching up a stick, ready to defend the honour of Landfall. "Are you Watchers?" Because who else could they possibly be, these two? Then she realizes she doesn't

really care about the answer to either question. She's gone beyond that sort of philosophical conundrum. "Have you... Have you got anything to eat. Please." She casts aside the stick. What, after all, would it have achieved?

The shorter of the two women kneels down and holds a hand out to her.

"We do, Liff," she says. If it's miraculous that she knows the girl's name, it's not half so miraculous as having food right now. "Will you come with us? We have food and a warm place, and all the help you need. Please, Liff. My name's Miranda. We want to help you."

The expression on the pale woman's face doesn't suggest anything of the sort. From the look of her, this whole business is an annoyance. However Miranda is holding a hand out to her, and Liff approaches cautiously. She has a sense of something immense and invisible focusing all its attention on the little vignette of the three of them.

When she takes Miranda's fingers, it's as though a vast silent bell sounds across the planet.

Abruptly Liff is filled with a sense of hope. Words come unbidden to her mind.

Maybe this time, she thinks, it'll be different.

12.9 Miranda

Much later, after many failures.

It's time for Miranda to leave.

She has spent a lot of time over Imir, in study. Even though ships are constantly splitting off to leave, the community has only grown. The universe is vast but has few jewels like this. Word spreads and people keep coming to begin their own non-invasive study of what's down there. Perhaps she'll come back, generations later, and see what more they have uncovered.

For now, though, she feels the need for pastures new. There is a lot of universe out there. There are messages from her far-flung kin about other stars and other worlds. Kindred engines have been discovered following the clues disinterred on Imir. Or perhaps something entirely other, more fingerprints of sentient life that was old long before even Avrana Kern first opened her eyes. Nascent biospheres just beginning to reach for understanding. Life, difference, change. Always something new to see. Miranda is leaving, and yet of course Miranda is staying. Because she doesn't have to commit herself. With a new blank body and a little decanting, she can continue to be a part of the Imir study, while also spreading herself across the galaxy.

She has a ship. Portia and Fabian are travelling too, along with a Gothi and a Gethli. Paul is staying put, having grown increasingly inspired by the inner life of the simulation, as are Jodry and Bianca. In their place, Miranda will have a new travelling companion.

Their ship will be another malleable Portiid hull, containing the ubiquitous Avrana Kern. It has budded from the *Skipper*, and the two vessels are currently belly to belly, at the very point of separation. Viewing the conjoined craft on the screens, Miranda turns to her new companion. She wants to say *Are you sure you're ready for this?* but such conversations have

been exhausted, along with the very best psychological evaluations. And more: this is a mind that has, at last, let her in. She can look into this face before her—so familiar from all those turns of the glass within the simulation—and find it mirrored within her, encoded into her cells. The friends we made along the way, within us all along. Of course Liff is ready. Miranda knows it as well as the girl herself.

Liff, in a shipsuit, grown a few years, on the cusp of adulthood with multiple adolescent histories stacked within her. A veteran of serial culture shock. It has taken her a long time to get this comfortable in the body they grew for her, which could only be an approximation of the simulated self she once knew. There's a lot of knowledge in her face now, rather than the wide-eyed questioning of the child she once was. Knowledge and pain, which together go to make experience. Miranda, in her many shapes, has travelled very far, but Liff has travelled all the way from another country altogether, on the far side of the mirror. Who, then, is the greater explorer?

Before they depart, though, there's one final piece of business with Imir, Liff's home-that-never-was.

Miranda and Liff go back into the simulation. This time Liff returns as a witch, moderator privileges in place. And just as well, because she intends to summon the greatest of all ghosts.

"I always sensed it out there," she tells Miranda. "At night, most of all. As though it needed people asleep and dreaming before it could *be*. I used to imagine it running through the trees." They are back in the height of Landfall's prime, when the forests are dark and rich. When the shadows beneath the trees might be inhabited by anything, even wolves. "But at the same time it *was* the trees and the hills and... everything. You couldn't see it because it was everything you looked at."

Now she's gone past the farmhouse that would have been her home, if there had been a house, and if there had been a *her*. She's standing with that strip of open ground between her and the start of the trees. Miranda takes up station at her shoulder, still not quite sure what might happen. She has seen Gothi and Gethli's cluttered rookeries of data on the subject, drawing the outlines of that additional influence they insist is there.

"In ancient, primitive cultures," Kern's voice comes in her ear, "they

personified just about everything. Gods and saints and genius loci. Not a rock or a waterfall or a tree that didn't have some entity claiming it."

"The patron god of Landfall, is that what you're saying?"

"Simultaneously arising out of the complex net of computation that is the Landfall simulation, and feeding back into it. The source of a thousand inconsistencies and coincidences the birds teased out of our stay here while we were looking for you. Throwing you and Liff together, dragging me hither and yon. All these new tools we'd given it. Like something trying to fight its way out of an eggshell. Not the engine, but some *self*, belonging to the actual simulation. The aggregation of all those complex interactions as an entity in itself, the colony and not the ants."

Within the trees, something moves. Something vast—too huge to be hidden within that limited darkness, as though the pitchy shadows of the trees are a void as great as space.

"We might be going too far," Miranda says, but Liff has a hand extended, as though the darkness will trot up and sniff her fingers. As though she knows it, and it knows her.

Miranda can't know if it *can* know. If it understands what it is, and what Liff is, and what these, its visitors from outside itself, are. And perhaps it won't come at the girl's call. Perhaps there is no sentience there at all, the birds just emptily hypothesizing. Or perhaps they are about to make first contact with an unutterably alien consciousness on its own home ground. Within its own mind. It may never be a thing she can speak to, or understand, or *be*. But if it is a *thing*, greater than the sum of its many parts, then they are about to show it that there is something outside its own complexity. They are about to introduce it to the wider universe.

She remembers when humans did that for her. It's not exactly a risk-free proposition. But worth it, she feels, in the long run.

Liff's breath catches. She's seen something, perhaps. Felt the approach of the wolf that swallows the sun only because it has always been as self-contained as a black hole. Nothing escaping from it, until it permitted Miranda to leave. Until, through Liff, it facilitated that leaving.

Now Liff is leaving, but before she goes she wants to say goodbye. And, within that primal darkness, eyes open and something approaches.

ACKNOWLEDGEMENTS

Thanks to my early readers Annie Czajkowski and Roland Oughton, and to my agent Simon Kavanagh, for looking at this after I'd begun to go cross-eyed with it. Thanks also to Michael Czajkowski for his invaluable advice on planetary science. Finally, a nod to my research sources, Bernd Heinrich's *Mind of the Raven* and Jennifer Ackerman's *The Genius of Birds*.

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extras



meet the author



Joby Sessions

ADRIAN TCHAIKOVSKY was born in Woodhall Spa, Lincolnshire, in the UK and headed off to university in Reading to study psychology and zoology. For reasons unclear even to himself, he subsequently ended up in law. Adrian has since worked as a legal executive in both Reading and Leeds and now writes full-time. He also lives in Leeds, with his wife and son. Adrian is a keen live-action role-player and occasional amateur actor. He has also trained in stage fighting and keeps no exotic or dangerous pets of any kind—possibly excepting his son.

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if you enjoyed
CHILDREN OF MEMORY

look out for

SHARDS OF EARTH

The Final Architecture: Book One

by

Adrian Tchaikovsky

The war is over. Its heroes forgotten. Until one chance discovery....

Idris has neither aged nor slept since they remade him in the war. And one of humanity's heroes now scrapes by on a freelance salvage vessel to avoid the attention of greater powers.

After Earth was destroyed, mankind created a fighting elite to save their species: enhanced humans such as Idris. In the silence of space, they could communicate mind-to-mind with the enemy. Then their alien aggressors, the Architects, simply disappeared—and Idris and his kind became obsolete.

Now, fifty years later, Idris and his crew have found something strange abandoned in space. It's clearly the work of the Architects—but are they returning? And if so, why? Hunted by gangs, cults, and governments, Idris

and his crew race across the galaxy, hunting for answers. For they now possess something of incalculable value that many would kill to obtain.

PROLOGUE

In the seventy-eighth year of the war, an Architect came to Berlenhof.

The lights of human civilization across the galaxy had been going out, one by one, since its start. All those little mining worlds, the far-flung settlements, the homes people had made. The Colonies, as they were known: the great hollow Polyaspora of human expansion, exploding out from a vacant centre. Because the Architects had come for Earth first.

Berlenhof had become humanity's second heart. Even before Earth fell, it had been a prosperous, powerful world. In the war, it was the seat of military command and civilian governance, coordinating a civilization-scale refugee effort, as more and more humans were forced to flee their doomed worlds.

And because of that, when the Architect came, the Colonies turned and fought, and so did all the allies they had gathered there. It was to be the great stand against a galactic-level threat, every weapon deployed, every secret advantage exploited.

Solace remembered. She had been there. Basilisk Division, Heaven's Sword Sorority. Her first battle.

*

The Colonies had a secret weapon, that was the word. A human weapon. Solace had seen them at the war council. A cluster of awkward, damaged-looking men and women, nothing more. As the main fleet readied itself to defend Berlenhof, a handful of small ships were already carrying these "weapons" towards the Architect in the hope that this new trick would somehow postpone the inevitable.

Useless, surely. Might as well rely on thoughts and prayers.

On the *Heaven's Sword*, everyone off-shift was avidly watching the displays, wanting to believe this really *was* something. Even though all previous secret weapons had been nothing but hot air and hope. Solace stared as intently as the rest. The Architect was impossible to miss on screen, a vast polished mass the size of Earth's lost moon, throwing back every scan and probe sent its way. The defending fleet at Berlenhof was a swarm of pinpricks, so shrunk by the scale they were barely visible until she called for magnification. The heart of the Colonies had already been gathering its forces for dispatch elsewhere when the Architect had emerged from unspace at the edge of the system. Humanity was never going to get better odds than this.

There were Castigar and Hanni vessels out there, alien trading partners who were lending their strength to their human allies because the Architects were everybody's problem. There was a vast and ragged fleet of human ships, and some of them were dedicated war vessels and others were just whatever could be thrown into space that wasn't any use for the evacuation. Orbiting Hiver factories were weaponizing their workers. There was even the brooding hulk of a Naeromathi Locust Ark out there, the largest craft in-system—save that it was still dwarfed by the Architect itself. And nobody knew what the Locusts wanted or thought about anything, save that even they would fight this enemy.

And there was the pride of the fleet, Solace's sisters: the Parthenon. Humans, for a given value of human. The engineered warrior women who had been the Colonies' shield ever since the fall of Earth. *Heaven's Sword*, *Ascending Mother* and *Cataphracta*, the most advanced warships humanity had ever designed, equipped with weapons that the pre-war days couldn't even have imagined.

As Solace craned to see, she spotted a tiny speckle of dots between the fleet and the Architect: the advance force. The tip of humanity's spear was composed of the Partheni's swiftest ships. Normally, their role would have been to buy time. But on this occasion, the *Pythoness*, the *Ocasio*, the *Ching Shi* and others were carrying their secret weapon to the enemy.

Solace didn't believe a word of it. The mass looms and the Zero Point fighters the *Heaven's Sword* was equipped with would turn the battle, or nothing would. Even as she told herself that, she heard the murmur of the other off-shift women around her. "Intermediaries," one said, a whisper as if talking about something taboo; and someone else, a girl barely old enough to

be in service: “They say they cut their *brains*. That’s how they make them.”

“Telemetry incoming,” said one of the officers, and the display focused in on those few dots. They were arrowing towards the Architect, as though planning to dash themselves against its mountainous sides. Solace felt her eyes strain, trying to wring more information from what she was seeing, to peer all the way in until she had an eye inside the ships themselves.

One of those dots winked out. The Architect had registered their presence and was patiently swatting at them. Solace had seen the aftermath of even a brush with an Architect’s power: twisted, crumpled metal, curved and corkscrewed by intense gravitational pressures. A large and well-shielded ship might weather a glancing blow. With these little craft there would be no survivors.

“It’s *useless*,” she said. “*We* need to be out there. *Us*.” Her fingers itched for the keys of the mass looms.

“Myrmidon Solace, do you think you know better than the Fleet Exemplars?” Her immediate superior, right at her shoulder of course.

“No, Mother.”

“Then just watch and be ready.” And a muttered afterthought: “Not that I don’t agree with you.” And even as her superior spoke, another of the tiny ships had been snuffed into darkness.

“Was that—?” someone cried, before being cut off. Then the officer was demanding, “Telemetry, update and confirm!”

“A marked deviation,” someone agreed. The display was bringing up a review, a fan of lines showing the Architect’s projected course and its current trajectory.

“So it altered its course. That changes nothing,” someone spat, but the officer spoke over them. “They *turned* an Architect! Whatever they did, they *turned* it!”

Then they lost all data. After a tense second’s silence, the displays blinked back, the handful of surviving ships fleeing the Architect’s renewed approach towards Berlenhof. Whatever the secret weapon was, it seemed to have failed.

“*High alert*. All off-shift crews make ready to reinforce as needed. The fight’s coming to us!” came the voice of the officer. Solace was still staring at the display, though. *Had* they accomplished nothing? Somehow, this secret Intermediary weapon had shifted the course of an Architect. Nobody had

made them so much as flinch before.

Orders came through right on the heels of the thought. “Prepare to receive the *Pythoness*. Damage control, medical, escort.” And she was the third of those, called up out of the off-shift pool along with her team.

The *Pythoness* had been a long, streamlined ship: its foresection bulked out by its gravitic drives and then tapering down its length to a segmented tail. That tail was gone, and the surviving two-thirds of the ship looked as though a hand had clenched about it, twisting every sleek line into a tortured curve. That the ship had made it back at all was a wonder. The moment the hatch was levered open, the surviving crew started carrying out the wounded. Solace knew from the ship’s readouts that half its complement wouldn’t be coming out at all.

“Myrmidon Solace!”

“Mother!” She saluted, waiting for her duties.

“Get this to the bridge!”

She blinked. *This* was a man. A Colonial human man. He was skinny and jug-eared and looked as though he’d already snapped under the trauma of the fight. His eyes were wide and his lips moved soundlessly. Twitches ran up and down his body like rats. She’d seen him before, at the council of war. One of the vaunted Intermediaries.

“Mother?”

“Take him to the bridge. Now, Myrmidon!” the officer snapped, and then she leant in and grabbed Solace’s shoulder. “This is *it*, sister. This is the weapon. And if it’s a weapon, we need to use it.”

There were billions on Berlenhof: the local population as well as countless refugees from the other lost worlds. Nobody was going to get even a thousandth of those people off-world before the Architect destroyed it. But the more time they could buy for the evacuation effort, the more lives would be saved. This was what the Parthenon was spending its ships and lives for. That was what the Hivers would expend their artificial bodies for, and the alien mercenaries and partisans and ideologues would die for. Every lost ship was another freighter off Berlenhof packed out with civilians.

She got the man into a lift tube, aware of the wide-eyed looks he’d been receiving as she hauled him from the dock. He must be getting a far worse case of culture-shock; regular Colonials didn’t mix with the Parthenon and before the war there’d been no love lost. Here he was on a ship full of women

who all had close on the same face, the same compact frame. Human enough to be uncanny but, for most Colonials, not quite human *enough*.

He was saying something. For a moment she heard nonsense, but she'd learned enough Colvul to piece together the words. It was just a demand to wait. Except they were already in the lift, so he could wait all he wanted and they'd still get where they were needed. "Wait, I can't..."

"You're here... Menheer." It took a moment for her to remember the correct Colvul honorific. "My name is Myrmidon Solace. I am taking you to the bridge of the *Heaven's Sword*. You are going to fight with us."

He stared at her, shell-shocked. "They're *hurt*. My ship. We jumped..."

"This is your ship now, Menheer." And, because he was shaking again, she snapped at him. "*Name*, Menheer?"

He twitched. "Telemmier. Idris Telemmier. Intermediary. First class."

"They say you're a weapon. So now you have to fight."

He was shaking his head, but then she had him out of the lift and the officers were calling for him.

The battle displays formed a multicoloured array in the centre of the bridge, showing the vast fleet as it moved to confront the Architect. Solace saw that they were finally about to fire on it: to do what little damage they could with lasers and projectiles, suicide drones, explosives and gravitic torsion. But their goal was only to slow it. A victory against an Architect was when you made yourself enough of a nuisance that they had to swat you before they could murder the planet.

They got Idris in front of the display, though Solace had to hold him upright.

"What am I—?" he got out. Solace saw he didn't have the first clue what was going on.

"Whatever you can do, *do*," an officer snapped at him. Solace could see and feel that the *Heaven's Sword* was already on its attack run. She wanted desperately to be on-shift at the mass loom consoles, bringing that ersatz hammer against the shell of the Architect. She didn't believe in this Intermediary any more than she believed in wizards.

Still, when he turned his wan gaze her way, she mustered a smile and he seemed to take something from that. Something lit behind his eyes: madness or divine revelation.

Then their sister ship's mass loom fired and Solace followed the

Cataphracta's strike through the bridge readouts. It was a weapon developed through studying the Architects themselves, a hammerblow of pure gravitic torsion, aiming to tear a rift in their enemy's crystalline exterior. Operators read off the subsequent damage reports: fissuring minimal but present; target areas flagged up for a more concentrated assault. The *Heaven's Sword*'s Zero Point fighters were flocking out of its bays now and dispersing, a hundred gnats to divert the enemy's time and attention from the big guns.

The whole bridge sang like a choir for just a moment as their own mass loom spoke, resonating through the entire length of the ship. Solace felt like shouting out with it, as she always did. And kept her mouth shut, because here on the bridge that sort of thing would be frowned on.

Idris gasped then, arching backwards in her arms, and she saw blood on his face as he bit his tongue. His eyes were wider than seemed humanly possible, all the whites visible and a ring of red around each as well. He screamed, prompting concerned shouts from across the bridge, eclipsed when the Fleet Exultant in command called out that the Architect had faltered. Impossible that so much inexorable momentum could be diverted by anything short of an asteroid impact. But it had jolted in the very moment that Idris had yelled.

The mass loom sang again, and she saw the *Cataphracta* and the *Ascending Mother* firing too, all targeting the same fractures in the Architect's structure. Smaller ships were wheeling in swarms past the behemoth's jagged face, loosing every weapon they had, frantic to claim an iota of the thing's monstrous attention. She saw them being doused like candles, whole handfuls at a time. And then the Architect's invisible hands reached out and wrung the whole length of the *Cataphracta* and opened it out like a flower. A ship and all its souls turned into a tumbling metal sculpture and cast adrift into the void. And it would do exactly the same to Berlenhof when it reached the planet.

The Locust Ark was annihilated next, fraying into nothing as it tried to throw its disintegrating mass into the Architect's path. Then the *Sword*'s loom spoke, but the choir was in discord now, the very seams of the warship strained by the power of her own weaponry. Idris was clutching Solace's hands painfully, leaning into her and weeping. The Architect had halted, for the first time since it entered the system, no longer advancing on the planet. She felt Idris vibrate at that point, rigid as he did *something*; as he wrestled

the universe for control over the apocalyptic engine that was the Architect. Her ears were full of the rapid, efficient patter of the bridge reports: stress fractures, targeting, the elegant physics of gravity as a bludgeoning weapon. Damage reports. So many damage reports. The Architect had already brushed them once and Solace had barely realized. Half the decks of the *Heaven's Sword* were evacuating.

"It's cracking!" someone was shouting. "It's cracking open!"

"Brace!" And Solace had to brace for herself and Idris too. Because his mind was somewhere else, doing battle on a field she couldn't even imagine.

*

There was a terrible impact and the screens briefly malfunctioned. Then in the chaos, as the *Heaven's Sword* died, the Fleet Exultant gave Solace her last orders. In response, she grabbed the Intermediary—the little Colonial man who might be their greatest weapon—and hustled him through the wreckage. She bundled him through the surviving sections of the ship to the life pods. She prioritized him even over her sisters because he'd been made her responsibility, but also because he was hope: the universe now had one destroyed Architect; before the Battle of Berlenhof that number had been zero.

*

Later, in the vast medical camp planetside, Solace had been there holding Idris's hand when he awoke. They'd been surrounded by other casualties from the *Heaven's Sword*, all the other lucky ones who'd managed to escape with injuries rather than obliteration. Between the fight and its explosive end, half the fleet and a dozen orbitals had been crippled.

Idris had squeezed her hand, and she'd hugged him impulsively, just as she would have hugged a sister. There was more fighting to come, but right then they were just two comrades in arms. A pair who'd stood before the inevitable and still turned it aside, and the war owed them time to heal.

Six years later, the Intermediaries would finally end the war, though not

by destroying or even defeating the enemy. The Architects, after almost a century of hounding humanity from world to world, would simply not be seen any more, vanished off into the endless space of the galaxy. Nobody could say where they had gone. And nobody knew when or if they might return.

Thirty-nine years after that, they woke Solace from cold storage one more time and said her warrior skills were needed. Not because the Architects were back, but because the Parthenon and the Colonies were on the brink of war.

if you enjoyed
CHILDREN OF MEMORY

look out for

THE DOORS OF EDEN

by

Adrian Tchaikovsky

They thought we were safe. They were wrong.

Four years ago, two girls went looking for monsters on Bodmin Moor. Only one came back.

Lee thought she'd lost Mal, but now her friend has miraculously returned. But what happened that day on the moors? And where has she been all this time? Mal's reappearance hasn't gone unnoticed by MI5 officers, either, and Lee isn't the only one with questions.

Julian Sabreur is investigating an attack on top physicist Kay Amal Khan. This leads Julian to clash with agents of an unknown power—and they may or may not be human. His only clue is grainy footage showing a woman who supposedly died on Bodmin Moor.

Dr. Khan's research was theoretical; then she found cracks between our

world and parallel Earths. Now these cracks are widening, revealing extraordinary creatures. And as the doors crash open, anything could come through.

Prelude: The Ediacaran Period

Excerpt from *Other Edens:
Speculative Evolution and Intelligence* by Professor Ruth
Emerson of the University of California

For three billion years the only life here has been microscopic. Bacteria have been leaching sustenance from strange chemicals in the bowels of the Earth or the depths of the sea. Ice comes, ice goes; the atmosphere for most of this time is a heady mix of chemicals either toxic to life or simply useless to it. There is life, though. For almost half the aeons since its formation, this world has known self-replicating organic entities. They've been bustling and thriving and dying and trying to outdo one another in a ferocious, invisible war for survival.

Life sometimes seems destined, to we fortunate ones who live at the far end of time's telescope. But what were the chances of success? Hard to say, and the no man's land between inorganic process and organic existence is a region, not a hard dividing line. We fondly believe there is no reversing that step, however, after a few very basic criteria are satisfied. Imagine life as a manual that includes instructions for replicating itself. The replication process is fallible, of course; everything is in this world. That leads to mutation and the possibility of change, and so to evolution. Here, a mutation can give one minuscule knot of organic chemistry the opportunity to replicate more efficiently than its neighbours. Its offspring faithfully copy the fortuitous error and thereby inherit it. Even without the evidence nestling in the heart of every living cell, the logic itself should be infinitely persuasive. Evolution is inevitable once you have an imperfectly self-replicating system in an environment of limited resources.

For the longest time, all the dramas of this particular world could have played out in a drop of water, life was of so small a scale. We have some evidence of a few flowerings of more complex life developing. But either the ice came back, acidity rose or oxygen levels fell—and these early signs collapsed like enlightened empires before the tides of barbarism.

Three billion years passed like motes in a god's eye. Life expanded to fit the meagre niches the world provided. And a constantly changing cast of life forms fled from one another, devoured their fellows like miniature tigers and traded genetic material like shady black marketeers hiding contraband in their trench coats. These life forms exploited the inorganic substrate of the world. Later, they exploited the organic matrix that was the graveyard of a million billion fast-lived generations of their forebears.

Then in this Archaean microbial age, some unicellular visionary made an explosive discovery—akin to mankind's discovery of fire, in terms of its impact. A volatile, poisonous chemical was tamed. Since the dawn of the Earth, this chemical had voraciously attacked any element it came into contact with; now it became the servant of developing life. This first metabolizing of oxygen might have been a defence mechanism. A process that incorporated the dangerous substance rather than falling prey to it. Perhaps your ancient ancestors took wolf cubs from their mothers with a similar goal. And what a world of opportunity opened up! Oxygen is a shortcut to a higher energy lifestyle, a ticket to getting out of the bacterial ghetto to live the high life. Our cast of characters becomes more complex as a result. Life gets a new paint job, alloys and go-faster stripes, now there is something more powerful under the hood.

Next, single cells find advantage in numbers. Simple bacterial mats carpet the floors of every sea, shore to shore, washing up on lifeless beaches in a scummy slick of organic matter that cannot even decay properly yet. Then cells cling to each other, sharing the work so enough of them might even resemble some larger coherent being. But the next storm or riptide breaks them down again, to reform slowly, later. Some developing cells cling to those bacterial mats and rocks and sieve the water for organic detritus; some drift in the current. Cells evolve that can only survive in the company of their fellows, doing some small specialist role like an office worker who only deals with form G. But because the rest of the alphabet is also monitored, the paycheque still comes through every month. Multicellular life evolves

exponentially, now it has that hard, oxygenated liquor to fuel it. Everywhere, a garden of life arises—the very first Eden. But it doesn't support life like ours, or even our ancestors'. This is life of another caste entirely. A world of quilt-bodied things that lie supine upon the sea floor, or inch slowly across the bacterial mats without limbs or muscles, feeding upon them without mouths. They are a global community of organisms alien to us, and they live without tooth or claw, without eyes, without organs.

Our world was like this once. Go back six hundred million years and you wouldn't know the difference. But this is not our world.

In this world, something awoke.

BY ADRIAN TCHAIKOVSKY

SHADOWS OF THE APT

Empire in Black and Gold
Dragonfly Falling
Blood of the Mantis
Salute the Dark
The Scarab Path
The Sea Watch
Heirs of the Blade
The Air War
War Master's Gate
Seal of the Worm

ECHOES OF THE FALL

The Tiger and the Wolf
The Bear and the Serpent
The Hyena and the Hawk

THE FINAL ARCHITECTURE

Shards of Earth
Eyes of the Void

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Children of Time
Children of Ruin
Children of Memory

The Doors of Eden

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—*Guardian on Dogs of War*