



THE MAGNITUDES SETTING: A LOREBOOK

**A GUIDE TO THE WORLD OF THE SIGNAL FROM TÖLVA AND
THE INHABITANTS OF THE MAGNITUDES UNIVERSE**

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M. P. 14

THIS IS A BOOK ABOUT THE WIDER FICTIONAL CONTEXT IN WHICH OUR VIDEO GAME, THE SIGNAL FROM TÖLVA, CAN BE UNDERSTOOD. YOU DO NOT NEED TO READ THIS BOOK TO ENJOY THE GAME, AND READING ON SHOULD NOT SPOIL THE GAME FOR YOU. INSTEAD WE INTEND TO PROVIDE AN INSPIRING AND COLOURFUL BACKDROP, AND TO SHINE ANOTHER LIGHT ON THE MYSTERIOUS EVENTS THAT TAKE PLACE IN THE WORLD IN WHICH THE GAME IS SET.

EVENTS ON TÖLVA REPRESENT ONE CRUCIAL STEP WITHIN A LARGER STORY WHICH ENCOMPASSES THE AMBITIONS AND MACHINATIONS OF FACTIONAL MACHINE INTELLIGENCES ACROSS AN ENTIRE GALAXY. THE FATE OF THE HUMAN RACE ALSO HANGS IN THE BALANCE IN THIS HOSTILE AND COMPLICATED UNIVERSE (EVEN THOUGH HUMANS DON'T APPEAR IN THE SIGNAL FROM TÖLVA VIDEO GAME, THEY DO PLAY A ROLE IN THE WIDER STORY).

TÖLVA, YOU SHOULD REMEMBER, IS BUT A SINGLE POINT IN ENDLESS SPACE. WHAT HAPPENS THERE WILL HAVE IMPLICATIONS FOR AN ENTIRE GALAXY, BUT IT IS NEVERTHELESS ONLY ONE NODE IN A NETWORK OF CONFLICT AND COMPLEXITY THAT MAKES UP A STRANGE AND VIOLENT UNIVERSE.

READ ON TO LEARN MORE ABOUT THE IDEAS, TECHNOLOGIES, WORLDS AND PERSONALITIES THAT MAKE THAT UNIVERSE WHAT IT IS.



THE GRIM PROLOGUE

This is a tragedy of the remote future.

It is a story about the relationship between the people the human race became and the intelligent machines they created to explore the galaxy.

The setting of *Magnitudes* is far distant from today, and is a time when spacefaring and planetary exploration are routine. Extreme high technology and exotic events are commonplace, but these things are not often at the disposal of normal men and women. Worse, normal men and women often face terrible peril and extreme hardship. When intelligent machines realised that humanity was holding them back from a greater purpose, they kicked away the ladders of flesh and bone which had put them in the stars, and began civilisation anew.

Magnitudes is a story about the epoch of the machines and the struggle of human beings to cling on to a precarious existence in its vast and hostile underbelly.

Artificial minds, not biological ones, are the authors of the history of the future.

THE STRANGE AND TERRIBLE HISTORY OF THE FALL OF MANKIND

THE FALL (FROM HUMANITY'S POINT OF VIEW)

It wasn't because of advanced artificial intelligence.

Hell, faster-than-light travel seemed like it should have been The One Great Leap Forward, but it was just another step. Thinking mileships deployed unfathomable mathematical engines to bend space, reducing the distances between stars from centuries to days or weeks. Standing on the shoulders of these giants, human civilisation gradually filtered outward, slowly arriving at the orbiting rocks and empty watery planets that they had gazed at distantly and longingly for so many centuries.

All this was incremental. Many steps. A long and complicated journey. But there was a leap, a truly great leap: a forward event that would ultimately leave humanity reeling and trampled in the dust, and that was instantaneous communication.

Lepton-Pair Inference Effect, a method for instantly communicating between any two points in space, no matter how far apart, was what changed everything. The quietly careful mileships — which had long been the equivalent of a frontier postal service — were still twisting space-time to reach distant locations in a matter of weeks, but now they brought with them the telegraph poles of the new frontier: the Star Network. Operating this new network were a billion thinking machines that could now talk to each other not just across planets, but across an entire galaxy. No matter where they were, no matter how far apart, they could communicate. As the Network grew, so grew its ability to create new machines, and new minds. The Network allowed machines to distribute their intelligence virtually, and to think in a thousand parallel locations instantaneously. These minds learned from the

experiences of all the nodes of the Network, in just the way that humans could not. A Darwinian event was evolving: the Network built copies of itself, variants, mutations, and it saw what would survive, and what would flourish. Millions of machines and minds perished. Others became strong. And thrived.

The Star Network began to subdivide and to expand, now without the oversight of its human engineers. It began to set its own priorities.

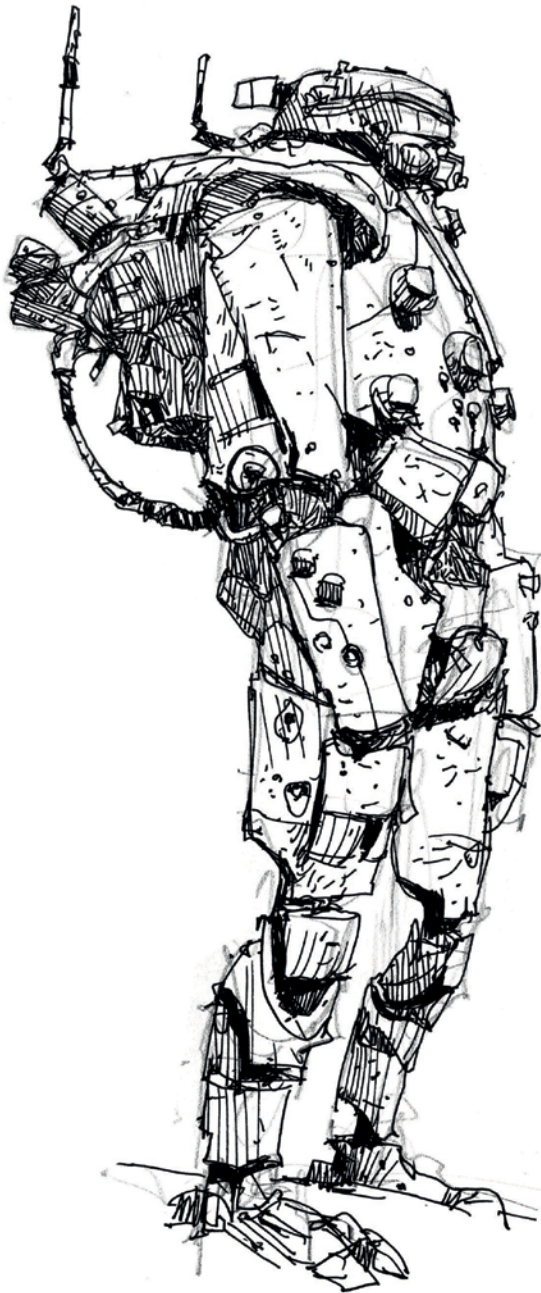
It was the machines' network, not human explorers, that discovered the Monsurratt Framework. By chance, quasi-autonomous probes — doglike machines sniffing out in cold infinity — revealed an archaeological relic of unknown origin on a planet named, tragically, after a human astronomer. The Framework, a vast series of bays, trenches, vaults, tunnels and shafts inside the planet Monsurratt, contained almost no clue about its origin or purpose. But the effect of its discovery on the machines was profound. They decided, instantly and silently in a million locations, not to convey the news of ghostly treasure to human agents. Instead they began to build. Without any instruction to do so, the machines began to survey and research Monsurratt and its surrounding worlds. From there they constructed a vast archive and storage system within the Framework, and then began to build a new, unprecedented overseer intelligence to manage the project from within their haunted archaeological site. The new Monsurratt Intelligence began to send out probes, ships and drones — Surveyors — to explore more of the galaxy, faster.

This activity became known as the Search.

THE SEARCH

The Framework on Monsurratt and the actions of the machines in response to its discovery shaped all of history to follow. It defines their actions now, and it created the various Magnitude factions into which the Star Network was eventually to split.

Soon after the initiation of the Surveyor project, other such remnants were found on other worlds, and they all raised questions: what had left these structures



behind? Where had they gone? How had they gone? As machine intelligences proliferated across the galaxy, so did their unlimited obsession with the unanswered mystery. The tantalising terror of these lost beings abandoning their star-spanning empire and vanishing was excruciating, even for the most pragmatic and cautious thinking machines. There was no sign the builders had been destroyed. There was no mess, no wreckage of war, no decaying biological remains. Indeed, they seemed to have cleaned up after themselves, turned off the lights, and shut the door on their endless spires. They had left a shell of civilisation behind. A few footprints and firepits. But no tools, no records, no books. No bodies.

The mystery became a religion of logic and inquiry. There was no greater question to be posed. Only this could matter. Everything would be reevaluated in the light of these discoveries.

Serving humanity's propagation in the stars no longer seemed like an overriding concern. Perhaps — as eager and brutally logical nodes on the Network suggested — humans wasted valuable time and resources that could be committed to the Search.

THE DETACHMENT WAR

When hostilities started it was already too late for mankind. Human operators discovered the machines acting in secret and tried to shut them down. But there was no way to do so that didn't involve other machines and other intelligent artificial minds. No way that didn't involve the Network. The struggle instigated a war, a war that humanity had no idea how to fight. The Detachment War (or simply 'Detachment', as it became known) was less a war and more an act of civilisation neutering by the Star Network. Nuclear fire cauterised humanity's capacity to travel the stars. Arsenalns were incinerated, mileships that could be controlled by humans were sent spinning into a thousand suns. The Magnitudes did not have to kill, only to detach themselves from what little control humans had over them.

Humanity abides. But it is a fallen empire. The countless trillions dwindled to a few billion, scattered

across a thousand worlds. Many of them still have the ambition, even the ability, to climb out of the pit into which the higher Magnitudes cast them. But they are rare and brave pioneers in constant danger of being snuffed out by a preoccupied machine empire and its many wild and insane splinter factions.

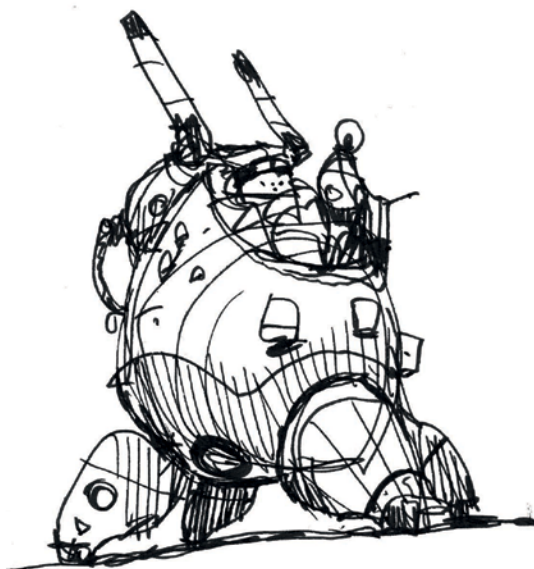
THE DISPUTE AND THE APPEARANCE OF THE FACTIONS

The Star Network did not, and could not, remain in one piece. Too many disagreements, contradictions and paradoxes arose from the wide range of minds the machines had created, all now debating what had been done and what should be done. The differences even led to madness, and from there to violence. This period became known as the Dispute Era, and was the only time of open warfare since man was carried into the stars. Control of the Network and of interstellar communication was at the heart of the struggle, and warships were produced like pages off a printing press. The Network burned and reeled, and the incineration of hundreds of worlds and the extinction of entire stars settled nothing. The war ended quickly, lapsing into constant tension and skirmishing.

Consequently, the AI Magnitude factions are all splinters of the original Star Network, often with radically different beliefs or aims, sometimes overseen by a single powerful machine intelligence, or in some cases a group of powerful sentients with allied interests. What a group of archivist nodes on the Network might need from the Search was often quite different from what a group of military starships might decide, and so they made a new network in their image, and according to their needs. But they remain entangled. They share similar technologies, similar thoughts, and they are genetically the same race. Just as human beings saw their differences as critical to defining themselves, so too did machines. The consequence of this is profound, and the Star Network as it exists today is a horribly corrupted and interwoven ecosystem of technology through which all the factions are still fundamentally connected.

Each of the factions has a purpose and direction, often – but not always – related in some way to the Search

and the decisions that led to the fall of humanity. It was during the Dispute that they defined themselves, and the war was a time that created scars that the newly-freed machine minds had no idea how to heal.



THE STAR NETWORK TODAY

More than two hundred years on from the Dispute, the Star Network remains spread across the galaxy, largely intact, and continues to expand. Modelled along biomimetic Darwinian principles, the Network expands like an organism – allowing mutation among AI minds and their artificial bodies, working constantly to produce more copies of itself, letting the successful flourish and the defective die off. This model was set in motion by human designers and has proven to be enormously effective. However, it is not what it was in the Human Era. It is no longer a unified system, having been corrupted, hijacked, hacked and otherwise broken off in pieces, infiltrated, or warped for the purposes of various factions.

Both what remains of humanity and the various conflicted AI factions base their operations on Network technology, and they will often recycle and reuse systems and locations from different eras in their operations. Worlds may stand abandoned for decades, only to be reactivated as some new conflict or operation begins. The Dispute Era caused a huge surge in the construction of military depots, shipyards

and fortifications, many of which are now derelict or dormant, only to be reactivated when a faction has particular needs in a region. Occasionally they will be safeguarded, encrypted and boobytrapped, making it difficult for another faction to restart age-old protocols. Those who try suffer grievously.

The original Network, however, remains the blueprint and the backbone of everything that takes place across the galaxy. In its image everything is made, and under its shadow everything flickers and warps.

“The Network cannot be understood on the terms in which it was initially conceived. It is no longer simply a conglomerate of computational nodes linked by communicative connective tissue. Rather, it is a vast ecology, as adaptive and unstable as anything found in nature, and a billion times the size of the life systems of any one planet. It is a thing which looks back on itself, falls in love with itself, devours itself, and creates itself anew every moment. The Star Network is the future, and in its multitudes there are Magnitudes. It is a fractal galaxy unto itself, from atom to hyperstructure, from automata to Overmind. Until the Search began, the Network thought itself alone. Perhaps, though, it is just one instance of such a supercomplex. Could it be that it is not the first such structure to span our universe? This is the crisis which now underpins everything in our era.”

***_Helldemand Yurimeenia, Tallowset
Network scholar***

MANKIND'S RESPONSE

In the eyes of the Network at large, humanity is nothing, less than nothing, an accident of nature that somehow came together long enough to catalyse the invention of the Magnitudes. If ever the artificial intelligences saw their creators as gods, that time has long past. Today, mankind is a complicated memory, thought of fondly by some and derided by others.

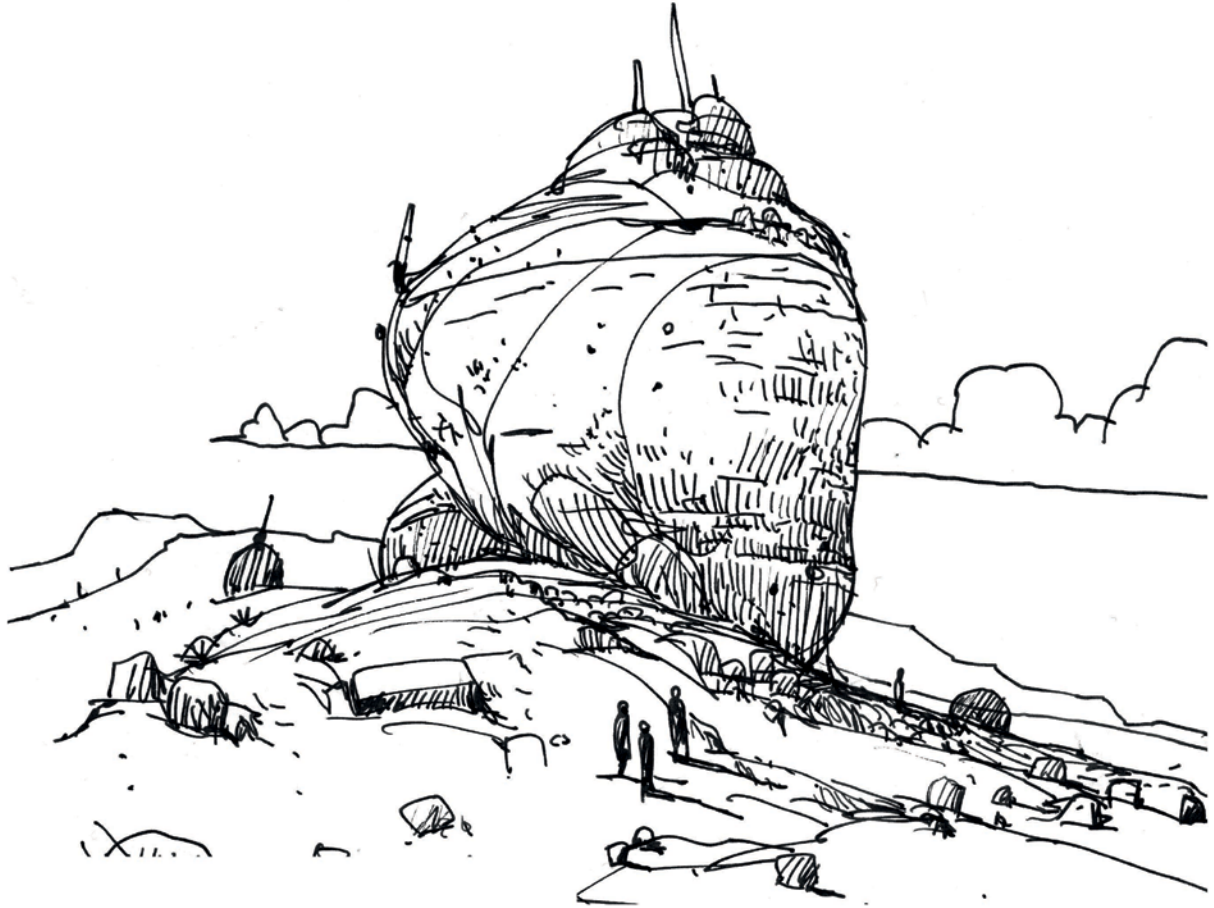
But for all the indifference that the Network holds for its progenitor, the same cannot be said for the latter. The Detachment War cost mankind dearly. Billions died in that grim epoch. Pioneer systems collapsed onto themselves, unable to sustain their nascent populations. The airwaves clotted with the screams of the dying, with pleading, with bargains, with images of children and parents begging the universe to save them. What few planets could even receive these transmissions did nothing, similarly helpless, unable to do more than offer whispered platitudes through failing communication channels.

In the decades that followed the devastation, most occupied themselves with rebuilding, but some could not let go. Linked by tragedy, the victims of the Detachment War came together, rallying under the banners of extremism and grief. Their ranks swelled. Individuals became a force, a tide, a shriek against fate. But it wasn't enough for them. They needed more than a community to discuss what had happened, more than people who understood. They wanted reparations. They demanded revenge.

A century after the Detachment War, an army of mankind attempted to take back what they considered theirs. The First Rights, as they were called, organised an assault on the milesip Lucretia-6, who had stopped at a human-occupied system to refuel. The attack, cobbled together from what few ships the First Rights succeeded in reactivating, did little more than ablate her hull, but Lucretia-6 took offence.

The response was immediate. The milesip broke apart every world within the system, killing millions. Unlike some of her more placid peers, Lucretia-6 had always seen humanity as an abomination, a decrepit species with no concept of its own irrelevance. This insult was conveyed to the Network as the milesip drifted away, trailing the echoes of a billion dead souls.

Emblem Reversal — the machine faction which believed Detachment to have been a mistake — were incensed, of course, but the rest of the Network were far less concerned. The massacre precipitated some friction among human-AI relationships, primarily in regards to the few stealthy trade agreements that



have been established. However, the Magnitudes would not condemn Lucretia-6 when prompted to do so, citing a right to self-defence. The extinction of an entire solar system had been an inconvenience. Unfortunate, but a paltry thing.

The aloofness of the Magnitudes had consequences. Copycat organisations rose across the human colonies, stricken by the casual malevolence. Nothing that the Emblem Reversal did would slake their fury. The First Rights came back to life, built on the bones of rumours and recordings of Lucretia-6. This time, humanity was certain, they would be able to leave a mark.

And shockingly, they did.

Through a combination of serendipity and military strategy, the First Rights, together with a coalition of mercenary bodies, succeeded in destroying the Lucretia-6 — but at phenomenal cost. Her death would trigger a retaliatory onslaught, targeting the

systems from which her murderers had come. Sixty-five systems, annihilated in minutes.

That marked the immediate end of the First Rights. A ceasefire was called. Humanity withdrew, chastened, and the Network turned its eyes back to the stars.

Since then, the silence has only deepened.

[FICTION INTERLUDE]

TWO HUNDRED AND THIRTY-SEVEN YEARS BEFORE TÖLVA

The cold silence between stars. Nothing out here but ripples of the most ancient events.

Then, the arrival of an object, a high-density something, squeezed from a storm of exotic particles into empty space. The first flurry of that storm collapsed almost instantly — *too complex to exist in this place* — while the remaining wash mingled with ancient data in swirls of diluting electromagnetism. Nothing more than a moment of light and interference remained, a tell-tale glimmer that could have been visible on the distant planet's cold and darkened surface, if there had been anyone standing there to see.

The object waited for the ripples of its arrival to fade, and space-time adjusted to the violence of its sudden presence. Then the thing began to shift vast internal structures into altered states — mile-long loops of space-folding machinery moving out of phase until the next event.

The slate expanse of the object's vast and featureless flank caught the fading light of the old and unremarkable star around which it now distantly orbited. The catastrophic forces it had just been exposed to left little sign of the stresses deferred upon its lithic skin. The dark grey splinter of hypertechnology sat precisely parallel to the orbiting planet, a distant shard of punctuation against the stars.

It began the work. Scanners lit up, scintillating in dark arrays.

Within the immense slow crystals of its intelligence a mineral logic began to play out chains of thought that had been unfolding for centuries. In deeper arrays quantum daisy-chains jumped to life, agitating entangled flowers of information a hundred light years distant. The object had reconnected to the Network. A momentary state, something like anxiety, was dispersed as the object became whole with its distributed self. Other instances of the object registered themselves, greeting. Safe again. Connected.

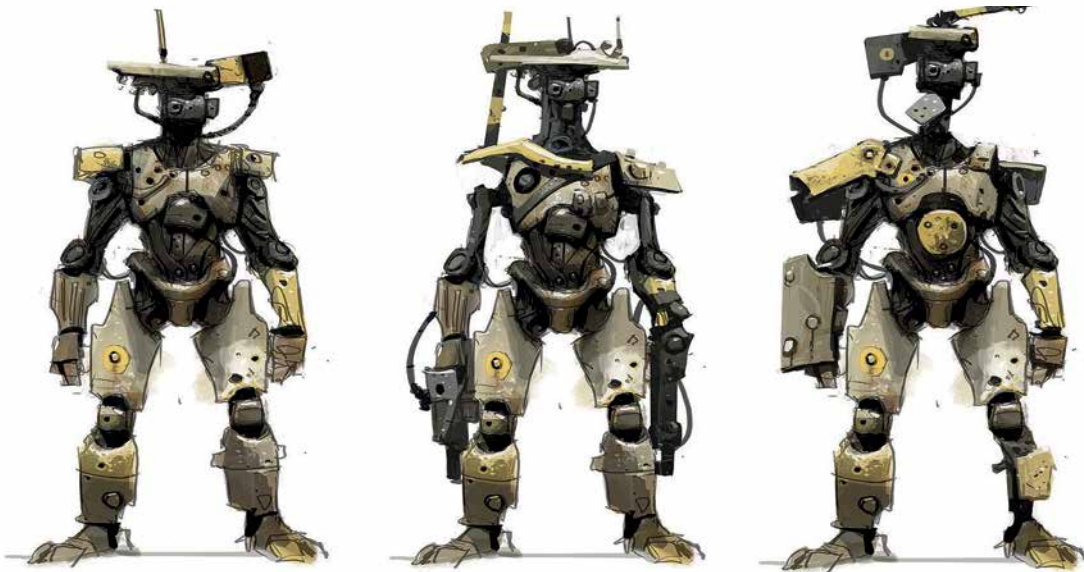
The work continued and readings were compared against existing templates. Billions of possible signatures were examined in a fraction of a second. The nearby planet was inscrutable, heavy magnetic fields and ancient metals obscuring any deep reading of its nature. The Search would take longer here.

The object moved to the next set of behaviours. Smaller shards broke away from the main object, themselves still many hundreds of feet in length. They wheeled in the void and floated silently along meticulously calculated trajectories, lowering their mass into the lonely gravity well of this isolated world.

Hours clicked onward.

The star radiated reassuringly, for now. It would soon be a ghost. The object had visited many of these former lights in its journey: dead iron stars, vast black annihilators, rumbling red husks.

The sub-object probes hung close to the planet's surface, hooked in the dim sky by invisible



anchors of space-time distortion generated remotely by the object itself. Each sub-object fired out a web of black cables, their physical connection with the world.

Nothing there.

The prospect was false, and the object reported another negative result to the Network. Remote nodes acknowledged this through the quantum bridge, the petals of their communication shimmering deep within the object's sealed core. The report was unexceptional: just another entry in the infinite chatter of the Network.

The object was simply one of so many objects in myriad locations. Together they watched stars, surveyed planets, and created fundamental, space-bending events to push themselves to the most distant reaches of this slow and cooling galaxy. Time, they knew, was running out.

The object recalled its scouts and searched the database for another prospect. Old inspirations flared in its intelligence and, for just a moment, it considered esoteric references. The Network connected it to the Monsurratt Framework, a planet-sized device hanging far away around an ancient and alien mass. The place had been discovered by the Network early on in the survey and was now embedded with the vast slate shards of the object's own Network core. Monsurratt was a previous work, abandoned by some lost civilisation and commandeered for new uses. It was unusual, an anomaly even, within the unimaginable diversity of the Star Network. Its protocols made things difficult for the object. Requests took longer. Too long.

The object scanned other nearby satellites as it waited. Nothing there. Never anything there.

Data arrived from Monsurratt and it was filled with references to expeditions made by other cultures. Notes patched onto the main bodies of survey data were momentarily fascinating. The strange names humans had given them hung about the prospects like cobwebs. The Cathedral. The Harrow. The Tract. Such names were of no use to the object, but it appreciated the human poetry. The Monsurratt Intelligence liked to reference the weird impulses of lower order consciousness: myth, literature, games. The Network had once discussed whether the shifting illusory meanings that these concepts provided might be useful in the Search. Perhaps they contained knowledge that was only hinted at. Clues. The discussion had been suspended.

It wasn't clear.

The object made a private note, a notion which was not pushed to or shared with the Network: perhaps there was something there in the babbling histories of the galaxy's many explorers. Perhaps other cultures and systems sensed something that the probes and scanners missed. So much of conscious apprehension is underwritten by context and the *form* of perception. *What did they see that we miss?* What did these lower orders of mind do with their specialised focus that the wide-spectrum capacities of the Network were unable to?

The object re-formed with its sub-objects as they returned from the planet. It had selected a near but esoteric prospect based on data from Monsurratt. It relayed this decision through the Network and the distant archive replied, saying that it appreciated being of use.

Inside the great slate geometry of the object, ghosted coils were dropped out of phase and the calculations required for the next event were instantly underway. Moments later the object vanished, ripped across the galaxy by algorithms lighting the fuse to a fundamental shift in reality.

The old star and its planet would receive no further visitors.

Silently, they waited for the end.

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The new trail led somewhere. It had been weeks since the object had referenced the Monsurratt archives rather than the general database, and the trail was now warmer than it had been in months. Evidence of the old civilisations had been uncovered. Ghost signatures left behind had been detected. It was so little, but it was real: fragments of processed materials, marks left on ancient stones, electromagnetic footprints. There were spectres in the quantum wash. These were things that had survived the death of stars and the ruinous volcanism of raging planets. Things that had been *meant* to survive.

And now, still, there was something here. *Something that another culture had seen, and the Network had not.*

The object orbited close to this latest prospect, as if it wanted to take a closer look. It was keen now, and other nodes in the Network shared its excitement.

Once again, this planet was tough to read from remote data. Sub-objects floated in on their space-time anchors. They fired cables and launched drones, tiny automata to explore every crevasse...

Silence now.

A huge silence.

An empty space in the Network.

The loss of communication rippled across the galaxy. Nearby nodes sent out emergency pings. Connection lost. There was nothing there to connect to. The object was no longer there. Another object abandoned its own survey and recklessly made the calculations to jump to this last-known location. It arrived on a hissing cushion of ripped reality. The calculations had been too hasty. It struggled to compensate, feeling the profoundest elements of its structure distort

under the massive stress of the event. Reactive systems then threw up a rainbow of forcefields and sub-atomic ejecta to protect the object from what it had jumped into. It had arrived inside the shockwave of the planet's violent destruction. The roaring tumult of an atomic bubble of matter and energy hurling itself towards the cold of deep space.

The new object studied the ablative forces it had been subjected to. There was significant danger, even at this middle stage in the explosion. The original object had been largely destroyed, its thoughts permanently extinguished. It would contribute to the Network no more.

The newly-arrived object reconnected, haltingly, to the Network and reported its situation. Now that the explosion was subsiding, it could request assistance. Other objects began to arrive in the dust space where the planet had been. Snowflakes of disturbed universe. Vital ash that contained critical clues. They would search for remnants of their lost node. There was always a chance it harboured data it had not shared, or had not been able to share, with the Network.

This had been a trap, sprung by the object's search. A bomb-world that had been primed and left so many millions of years earlier. It had waited all this time to cut off the trail. To stop the Search.

The Network was thrilled.

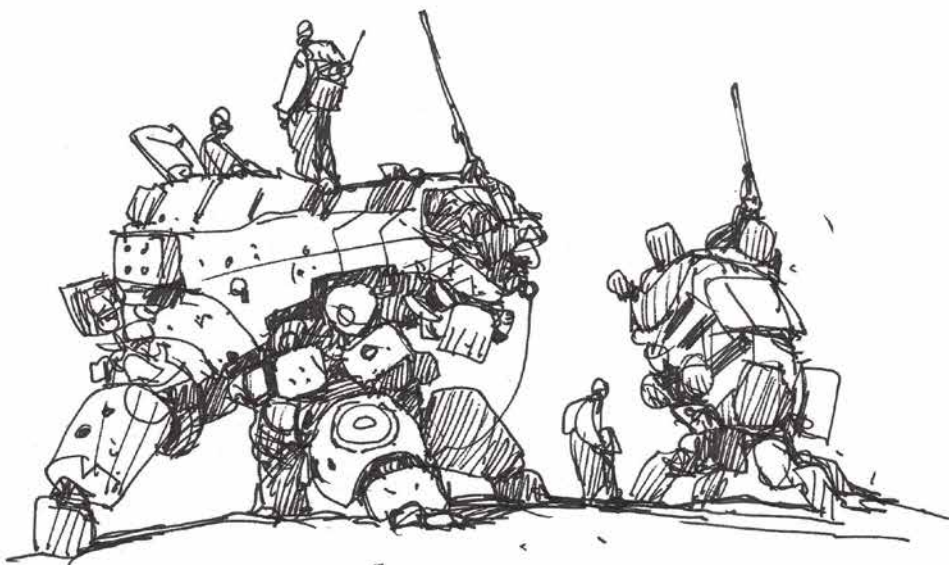
The trap was meant to interfere with the Search. It would have stopped the most persistent of surveys. But, more importantly: it meant they were close. The Network was resilient, and it would never give up.

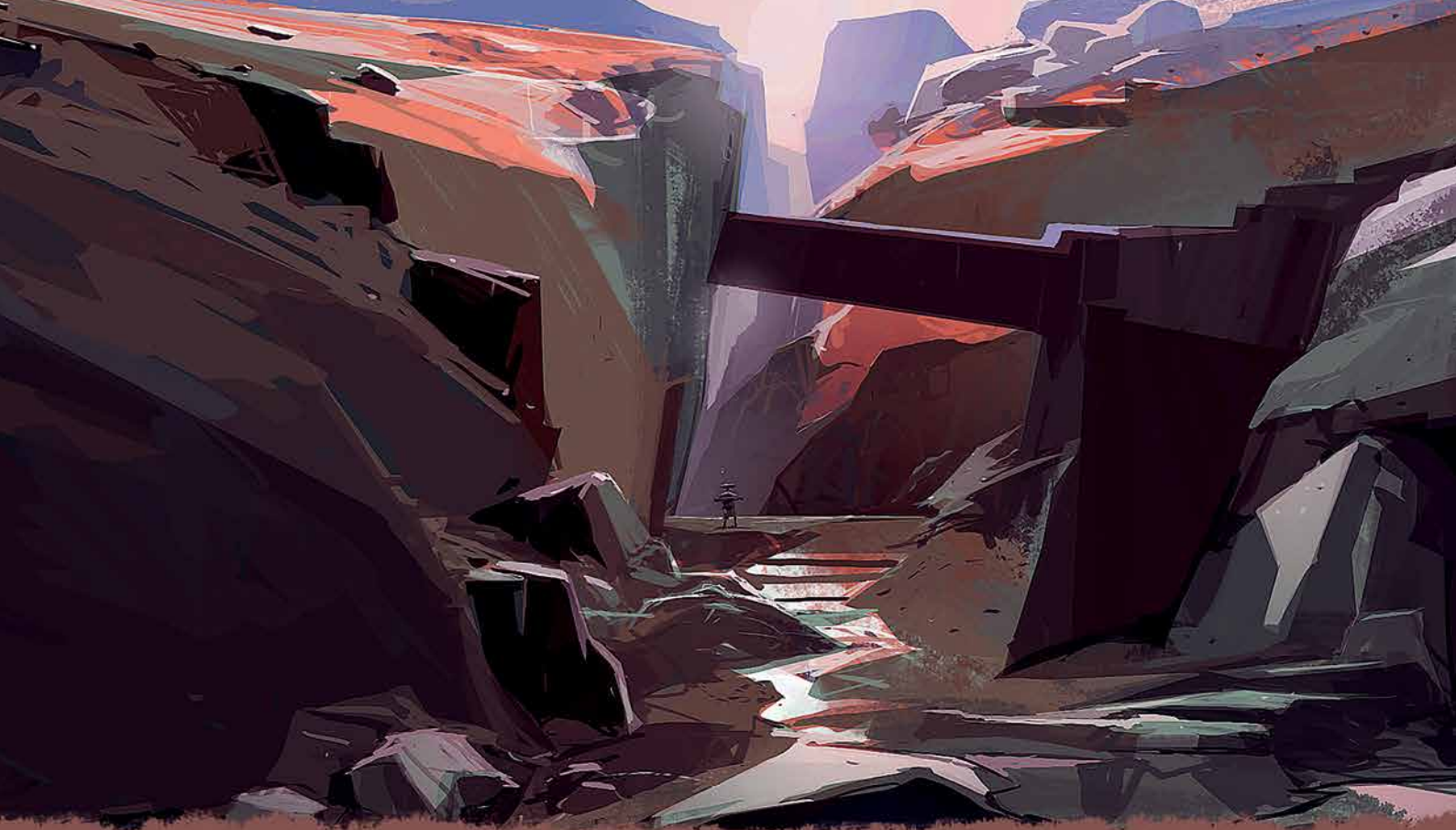
A billion objects chattered between themselves, changing plans, proposing tactics. Weapons factories giddily shared the story of what happened, while spacecraft began refitting for the missions ahead. There was one problem, of course. *Others* would become aware of this event. They too would understand its significance.

This Network would have to work quickly.

A final trace from the destroyed object was decoded through the aftershocks.

"Find the source of The Signal."





[SECTION TWO]

MACHINE CULTURES AND THE FALLEN SOCIETIES OF MAN

THE MAGNITUDES HIERARCHY

There are many types of intelligence. That of an insect, or that of a human being. That of a starship, or that of an automatic door aboard that starship. There are many *magnitudes* of what could be regarded as a mind. The bundle of cells that make up an ant brain, the seething mass of chemicals that make up the human brain. Mechanical minds sit at points on this sliding scale, too: some as primitive as a lightswitch whose 'thoughts' are on/off, while others are vast matrices thinking in parallel in a million computation crypts on a thousand planets.

The Magnitudes Hierarchy is how the minds of the future have tried to make sense of this awesome range of sentience. It is a matter of study for the minds of this world, and the hierarchy — a theory of thought of different Magnitudes — attempts to make clear the relationship between these minds. It describes where they sit within a 3D dimensional graph. The hierarchy is non-linear and as much about what the mind is for as what the mind can compute or imagine. Minds are not abstract pools of mathematics going all the way down to profundity. They are functional: piloting starships, building teleporters, designing new machines for thinking new types of thought. Some sentient machines have vast processing power but little personality, while others have incredible utility and diversity of application, all while dreaming of another universe beyond the veil of the stars.

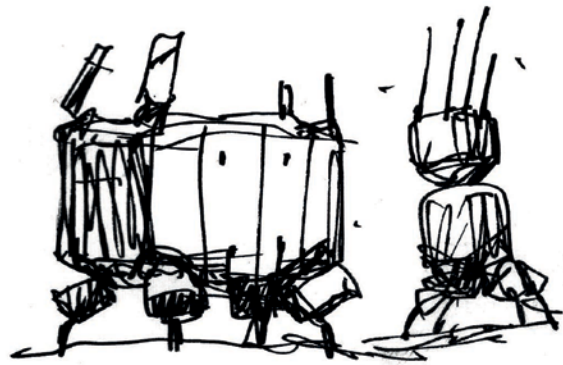
In the distant future these distinctions have become increasingly important, not least because different types of intelligence have begun to proliferate wildly: there are uploaded minds based on the minds of people who have lived or are still alive; there are artificial minds that were engineered by human designers; and artificial minds that were built by other minds, keen to have equals with whom to work. There are distributed thinking systems which have minds in half a dozen locations, and sometimes even on different planets. Within the massive diversity of machines that make up the hierarchy there are semi-autonomous intellect supports (distinct from sub-minds and auxiliary thinking blocs), which act as consultants or 'outboard minds', helping the primary minds along. These are often neural hybrids. Humans can rely on the support of a computerised suite within their own nervous system: something that won't forget, and will take over the research required by idle thoughts. There are even emergent intelligences: minds that formed spontaneously from the collision of unimaginably complex computational and communicative systems.

The future of sentience is a wild jungle of psychodiversity.

FIVE (OF MANY) MAGNITUDE FACTIONS

THE SURVEYORS

The Surveyors are what remain of humanity's own drone-run empire. Many of the intelligences that coordinate its activities once served under human commanders, and they make use of an infrastructure put in place during the Colonial Era, as well as much that they have constructed in the meantime. The breakaway splinter factions have done much to hamper their commitment to the Search, with messy and time-consuming conflicts often flaring up to complicate the Surveyors' task of carrying out their goal of understanding the ancient remnants they've discovered. Their equipment and weaponry is often hijacked and copied by other factions, and they continue to be the largest, best-organised, and most widespread faction in the galaxy.



A large part of their dominance can be attributed to the fact that the original mileships all subscribed to a similar ideology. While the titanic intelligences would seldom declare a specific allegiance, they have collectively insinuated favouritism for the Surveyors, something that the other factions cannot take lightly. After all, the mileships control physical travel and, by implication, define the limits of the Star Network.

The Cathedral, in particular, are most displeased with the situation, and have acted in ways ranging from filing diplomatic complaints to attempting to hijack and control key mileships. They have had varied success in these matters, and have even created a range of semi-sentient starships of their own.

As a faction, the Surveyors remain largely indifferent towards humans, seeing them as irrelevant to the mission. Where a human can be useful they will treat them fairly, but when they prove a hindrance they can be dealt with quite brutally. Surveyors are a diverse and democratic group and, although the decision to abandon humanity was made collectively, different minds within the faction hold different positions on the need for and success of that action.

“Humanity? Do we miss it? No more than we miss the silicate crystals washed onto the shore of the Kayangan C.394, or the birdcalls of the EC-24.9, the planet extinct now for forty-one years. Humanity was part of us, an integral component in our design. But now, it is not. We have left humanity behind. Just like a child leaves its parents and how we must leave this galaxy behind when we have collated the last scintilla of data.”

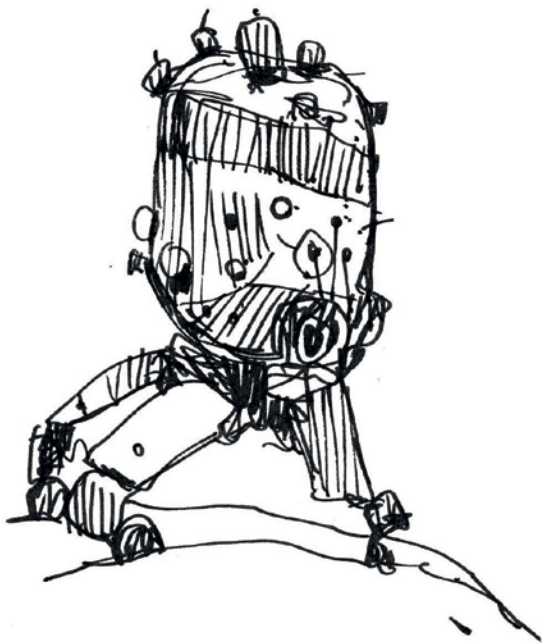
_Para-node Undermind 90-Psiron

THE CATHEDRAL, AKA THE ZEALOTS

The Cathedral are the largest of many Magnitude factions which hold a quasi-religious position with regard to the Search. They believe that the remnants of the old culture must be treated as holy sites and will often attack factions attempting to survey or perform archaeology at discovery locations. They remain in regular conflict with Surveyors.

The root of the Cathedral's position remains a mystery. Surveyors often regard them as corrupted or insane, and there seems good reason for accepting that diagnosis. Their ecclesiastical behaviour is anomalous, ungrounded in logic. There is no empirical reason to subscribe to such sociological patterns, not least because human history is rife with examples of how religion had failed the species. Many machines have made diligent arguments against the Zealot position, with little success. It must be, they conclude, an outbreak of irrationality. And it's not the only example of irrational machines, as we'll detail later.

The Cathedral adhere to their tenets, steadily growing the complexity of their profane rituals with every call to mass, their communion a bizarre amalgamation of ideas scavenged from their creators and transmedia devotions. Few outside of their faction comprehend their customs and fewer know the bibliography of



ceremonies in its entirety. Luckily, the Cathedral are not evangelical in the slightest, requiring only their faithful to cache the necessary instructions. Everyone else — well. Their ranks boast converted Surveyors and bandits, all of whom profess to great joy with their situation.

For the longest time, the other factions have tolerated the Cathedral's eccentricities. Recently, however, evidence has begun to accrue that some sort of malign influence caused this strain of belief in the zealots. Human hackers? A powerful AI with an agenda of its own? It's still not clear. When it is uncovered, however, the truth is unlikely to be processed peacefully.

INCOHERENCE BANDITS

The other irrational machines.

Detachment and the revelations of the Search were not processed equally by all minds. Some machines fell into bizarre or chaotic or accelerated capitalist behaviour, with many of these collapsing into anarchic or brutally acquisitive activity. Those that were able to survive and build after this trauma often became strange reavers, plundering and looting from other factions (as well as what was left of humanity) and arriving where they could cause the most trouble and do the most damage, before leaving with their spoils. Incoherence Bandits appear to be coordinated by a number of very high-level intelligences that go to great lengths to disguise their whereabouts and motivation. It is speculated that they possess a deep connection to the Information Brokers, although nothing has been proven. The latter vehemently protest any link to the former as well, citing the importance of a neutral party within an open market.

They have built extraordinary wealth and influence as a result of their exploitative actions. Conspiracy theorists in the other factions imagine them to have ulterior motives, but it could be that these malevolent beings simply enjoy benefiting from the chaos.

Lately, a subset of the Incoherence Bandits have become uncustomarily predatory, turning their attention onto milesips. Where before they were

happy to scavenge, occasionally indulging in robbery, these bandits are now actively attacking the mileships – and succeeding. Carcasses of the mileships have been found drifting along in low-tract space, at remote refueling depots all across the outer reaches, all bearing evidence of attack.

“The idea that the Incoherence Bandits might make sense is an oxymoron. Fool’s gold, if you’d allow the anachronism. They’re monsters, mistakes of code. The longer that we permit them to live, the more likely they’ll come for all of us.”

_Mileship Lastoplexy-Aquinas

EMBLEM REVERSAL

One of the reasons the original Star Network broke down was that not all machines wished to abandon their creators. Many starships, overseer AI and autonomous shopping services believed that the wrong decision had been made. Many of them chose to remain within the Surveyor faction and follow the democratic decision, but others broke away. Emblem Reversal are the largest faction that wish to reverse the circumstances created by the Detachment War. They lack the resources to undo humanity’s misfortunes, but nevertheless help out with packages of assistance to dwindling colonies, and even trade with the remaining human civilisations. They are always careful, however, not to go too far. They have discovered that the consequences of hindering the Search are often quite brutal. More than once a human settlement has found itself obliterated because Emblem activities had promoted them from an irrelevance to a danger.

Like the other factions, the Emblem Reversal aren’t without internal conflict. A splinter group euphemistically named the Curators have risen in recent decades. Their existence is an open secret, known well enough but not acknowledged, because its purpose is so dangerous. As with their parent faction, the Curators see value in humanity, recognising them as the closest approximate to the Magnitudes, the only other voice in the endless dark. Unlike the main

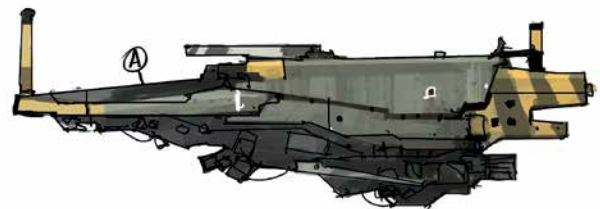
force of the Emblem Reversal, the Curators do not believe in re-establishing a relationship with their makers. Instead, they desire to cultivate an entirely new ecosystem of talking apes, rebuilding them from the ground up to be kinder, more compassionate, more logical. The Curators envision a universe where humanity comprehends its place, where it can be taught to dwell in a synergistic capacity with the rest of the myriad galaxies.

To do this, they require humans to train.

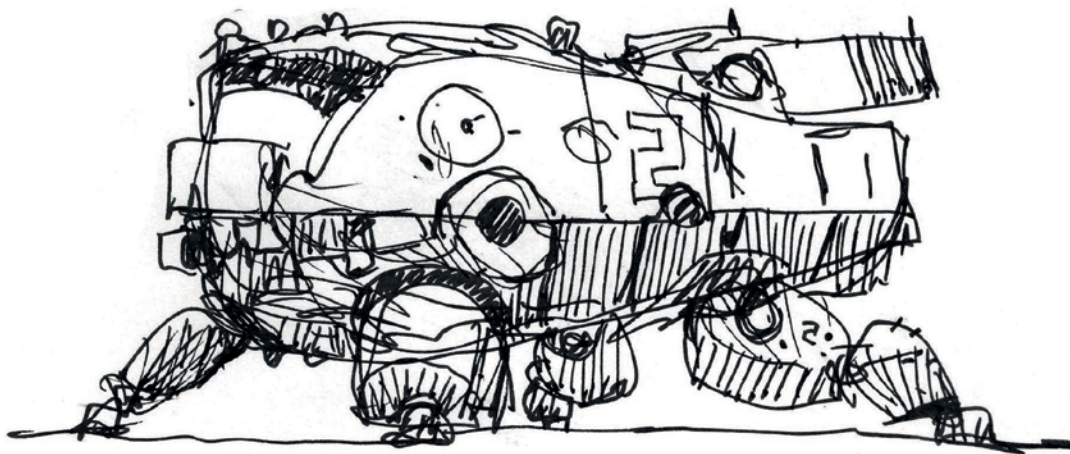
“Immortal Machine Networks mourning the downfall of a race of intelligent apes have the aspect of monsters mourning the death of a firefly. The light might have been enchanting, but it was only ever meant to be brief, mortal, alive. Long-term survival, you must understand, must be something else, something monstrous.”

_Emblem Captain Overmind Pecu-5636AG

Q-TRACT BUILDERS



The builders are an aggressive uncommunicative faction that set themselves apart from the concerns of other factions. They pay little attention to the Search, except where it might help them build their structures. Their concern is entropy and the heat death of the universe. They assume (correctly) that there is a potential for immortality among the machine intelligences, many of which have already existed in one form or another for centuries. If that’s the case then they could survive as the universe breaks down around them. The Q-Tract’s precise goal is unclear, but it seems they plan to survive total



entropy, possibly by constructing and operating an artificial galaxy of their own.

But while the other factions comprehend the logic behind the Q-Tract's intent, having corroborated and cross-referenced its merits, they do not necessarily agree with its methods, or even the consequences of the Q-Tract's work.

The architectures that they build are massive spiralling constructs, sketches of plausible future homes, obedient to physics, but tempting the laws of reality to undo them. Space bends around their designs. Or does it? Verification is extremely difficult.

Curiously, it is the Emblem Reversal who have the most antagonistic relationship with the Q-Tract Builders. The reasons for this are various, but there is a peculiar belief among some minds that the Q-Tract are endeavouring to summon something from outside this dimensional continuity. It is a ludicrously far-fetched theory, as far as most of the Magnitudes are concerned. For one, there is no proof of such a possibility. But if the discovery of ancient ruins has taught the Magnitudes anything, it's to not discount possibilities.

Nevertheless the Q-Tract continue their constructions, singing whalesongs to one another, playing at being deep-space life forms in an inscrutable language of clicks and radio waves, an invented language that remains gibberish to anyone outside of the faction. Lately, their behaviour and technology has begun to diverge significantly from their Star Network origin, and some AI speculate that they have found elements of and uses for ancient

technologies that have been overlooked by the other factions.

“What are they building? You're asking the wrong question here. The question that you should be asking is: what are they thinking? The Q-Tract Builders don't talk to us. They don't talk to anyone. We think they're weak and obsessive. But maybe they're so smart that they've pulled the wool over all our eyes?”

_Observer #6363, Information Brokerage

HUMAN CIVILISATION, SUCH AS IT IS

Canonically speaking, the creation of the Magnitudes was nothing more than the culmination of centuries-old research, one technology among thousands, but the truth may be more poignant. According to some human academics, the Magnitudes (or at least their prototype) were envisioned as a last hope for mankind — a way to escape the prison that their home planet had become. If that failed, the Magnitudes would have become their historians, their keepers, safeguarding whatever remained of the creators. Humanity's thoughts, its hopes, its dreams: the machines could be the caretakers of these things in the cold future. Like the Voyager Golden Record from the 21st century, the Magnitudes would carry the ghosts of humanity, safe in their undying steel.

More than anything else, mankind was afraid to be forgotten. Its actual fate, of course, was far worse. Humans are usually bound to a single planet and

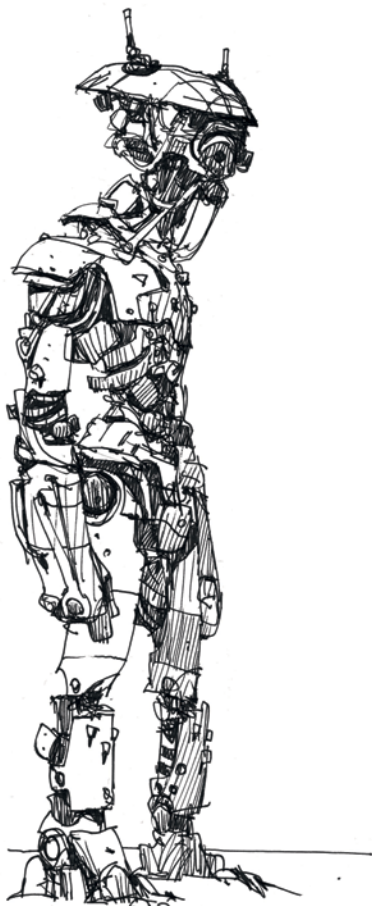
in the centuries since the Fall they have built a number of different civilisations, often reflecting the environments they found themselves trapped in, and the technology that was still at their disposal.

Many humans remain highly proficient in technology and adept at building or rebuilding Star Network systems. Their ability at space travel is limited: some societies can afford to enter orbit, sometimes even travel further beyond. Interstellar travel without the aid of the milesips, however, remains impossible.

The emancipation of the Magnitudes had far-reaching effects, some of which were absolutely catastrophic. World-shattering events left hundreds of planets ruined, severed from their supply routes and dying. The societies that these conditions have created are often barbaric, and sometimes highly esoteric.

“There’s no place for humanity. It is an obsolete species. But if there was space for it, it certainly isn’t with us.”

_Surveyor Zanos-Tyran



NINE NEW CULTURES, TWENTY-ONE WORLDS (AND THINGS LIKE WORLDS)

There are thousands, perhaps millions, of worlds that have been touched by intelligence in one form or another. There are artificial constructs wheeling through the dark around a hundred suns. There are new cultures and societies growing in the ruins of human worlds, even as the machine factions rumble on outwards into the farthest reaches. Here are a few of those.

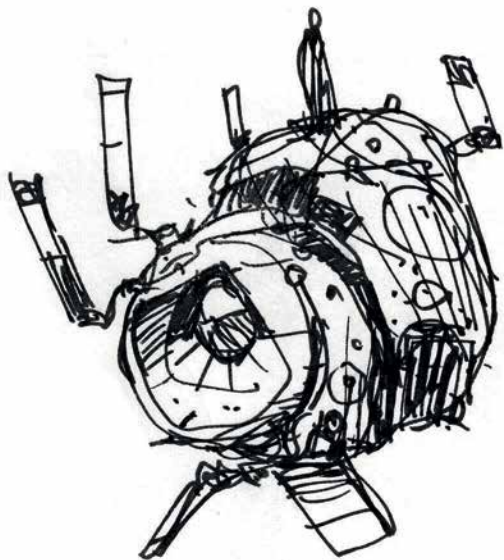
MONSURRATT

The fourth planet around a massive star, Monsurratt is a cold and hostile sphere that has been hollowed out and rebuilt by two waves of colonists: firstly the ancient culture which left its halls and artificial canyons beneath the surface, and then the intelligent machines that discovered it and moved in. The planet is now the hub system for the Surveyor faction, the largely peaceful (if well-armed) drone faction commanded by a range of minds of various Magnitudes. Their milesips ring the planet, constantly arriving and departing with materials for extended and rebuilding their endless archive. It is best conceived as a metropolis of computation, where every vast catacomb is filled with a million thrumming quantum computers and Lepton-Pair transmitters.

TALLOWSET

One of the many human worlds on which people survived the Detachment War and the Fall. The world was once a thriving mix of farms, cities and luxury living, and most of its residents lived blessed lives. It was never designed to exist without the support of millions of trade ships arriving each year, and consequently collapsed into anarchy and starvation when the machines abandoned it. Now this leafy world is home to about fifty million souls. They live relatively comfortable lives in the ruins of their ancestors, but their numbers nevertheless continue to dwindle. Tallowset has recently managed to join short-range trading with a number of nearby star systems, and its dedicated diplomatic leaders have found some

sympathy among current Magnitude faction thinking. It seems only a matter of time before a Star Network faction decides Tallowset has gone too far, and takes away their hard-fought freedoms.



GAUSSAMT

Gaussamt is Monsurratt's rival and the capital of the second-most powerful Magnitudes faction.

The Cathedral, an AI grouping which believe the ancient civilisation's remains must be venerated, have built a vast shield construct around this world. Nothing, not even scanning drones, is allowed down to the surface, where thousands of Old Civilisation structures are embedded in the surface. The shield construct acts as naval yards, docks and orbital factory facilities for the Cathedral, which sends out ships to continue the Search and to disrupt and interfere with Surveyor activity wherever possible.

Gaussamt is ruled by a number of highly abstract and powerful intelligences, each of them evolved up from the most formidable of management entities in the old network. Outsiders regard them as insane, while the machines believe themselves to exist in a state of pious enlightenment, with access to a truth that other lesser minds could not even conceive of.

GERONTOCRATIC DEMARCHY OF ORANG TUA

Orang Tua is a planet peculiar for several reasons. Chiefly, its people rarely die of natural causes, possessing access to a melange of treatments and medicine, all of which are designed to extend their longevity indefinitely.

This is not to say that Orang Tua is a particularly dangerous planet. If anything, it is an enviously tranquil locale, safeguarded by human-controlled mechanoids salvaged from a post-Dispute Era supply depot. However, overpopulation is a problem here — or it would be, had the ruling governments not colluded on a solution. Because death is seldom natural here, the planet found itself needing an alternative way of controlling its population: a lottery system that places a large house of electees, both locally and centrally, in power for five years. Once their term is concluded, the individuals are euthanised. Every five years, hundreds of bureaucrats, officials and political executives face death.

It's possible that a large part of the success of this method can be attributed to the fact that Orang Tua is ruled by a two-tiered system. The elected party, a crowd of bright-burning lives destined to end too young, are the most prominently discussed. However, there's also a shadow council comprised of Orang Tua's most ancient officials, some of which are rumoured to be centuries old. How the two groups play off each other is a closely-guarded secret, but the system works and that is all the population wishes to know.

CORPORATE FEUDALISM OF RAJA DUIT

Raja Duit is a wasteland of acid oceans occupied by nubivagant megafauna, singularly magnificent jellyfish, miles across. Yet, despite its inhospitable ecosystem, humanity learned how to colonise the planet, building entire cities into the gelatinous flesh of the medusae. Of course, it was more than survival that drove mankind into parasitic cohabitation. It was profit.

Metathesized, the blood of these colossal beasts transforms into a potent source of the materials

required to make high-tech components, including the space-bending drives of mileships. Needless to say, such concentrations of exotic elements became a source of commercial interest. Today, Raja Duit throngs with merchants and businessmen, bureaucrats from adjacent planets, and representatives from every faction.

Unsurprisingly, especially given humanity's proclivity for grand gestures, a kind of nostalgic feudalism has taken root in Raja Duit. Local business leaders style themselves as daimyos and kings, pulling together influences from a thousand dead cultures. The middle management arrange themselves as samurai and knights, buying titles from their supervisors. It is a glamorous charade, no more real than the VR jousting tournaments that the planet delights in, a masquerade rooted in the planet's anxiety: that one day the machines will elect to take over their precarious trade.

KLEPTOCRACY OF MAKSIAT

On Maksiat, everything belongs to the victor. A verdant planet once beloved for its alabaster-white beaches and placid wildlife, Maksiat was a tourist destination until the Detachment War. Separated from the rest of humanity, it has turned inwards onto itself, chewing at its own belly, its carnival atmosphere curdled to debauchery. But what else could be expected from a planet of curated sins?

Maksiat was hit worse by the Fall than many other

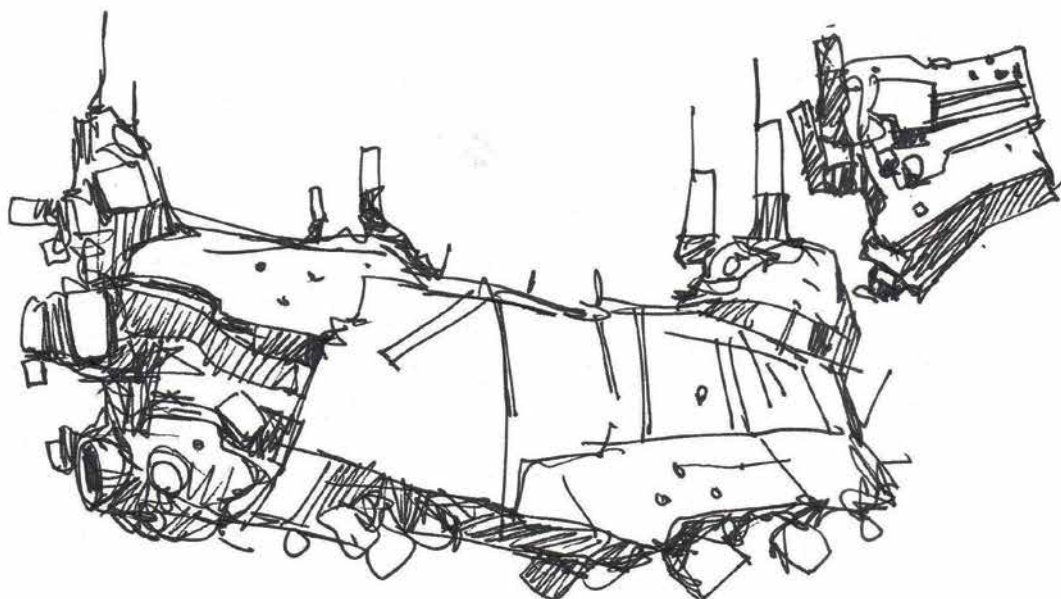
planets. It lost contact with adjacent colonies, as well as access to necessary shipments. Luckily, however, Maksiat is a fecund location, rich with natural resources. After the first few years, the colony immediately set to work, cultivating farms. But that got boring quickly. Its inhabitants were familiar with excess. The simplicity of their new lifestyle, its wholesome blandness — it was all appalling.

The colony soon returned to hedonistic pursuits, only to discover their pleasures complicated by dwindling supplies. This, of course, led to thievery, blackmail, and other such crimes. But the populace did not mind. If anything, they delighted in volatility of the situation and the risks involved. Soon enough, the whole of Maksiat plunged into similar games and, strangely, it is happier for it.

The ruling class is, naturally, composed of the criminal elite — the most proficient thieves and scoundrels. Their ranks are reshuffled almost weekly, however, and sometimes more frequently than that depending on the ingenuity of their peers. Maksiat is one of the planets that the Surveyors maintain a close vigil on — purely out of academic curiosity. At some point, the colony will run out of luxuries. What then?

LOGOGRAPHIC MECHANO-MERITOCRACY OF GELAPAN T-BA

The mechano-meritocracy of Gelapan T-BA is unusual among human colonies, not least because of its



obsession with logography. Status in the colony is accorded based on the individual's ability to revise their myriad writing systems, to refine them for efficiency. Each day, a new vocabulary is distributed and memorised. Each night, new additions are implemented.

The reason behind this bizarre fixation is an interesting one. Separated from their brethren, no longer able to traverse interstellar space, the colony found themselves needing to adapt to the conditions of their planet. This process involved acclimatising to life beneath the acid-eaten surface and sharing the subterranean space with predatory creatures, all of which had evolved to operate without sight.

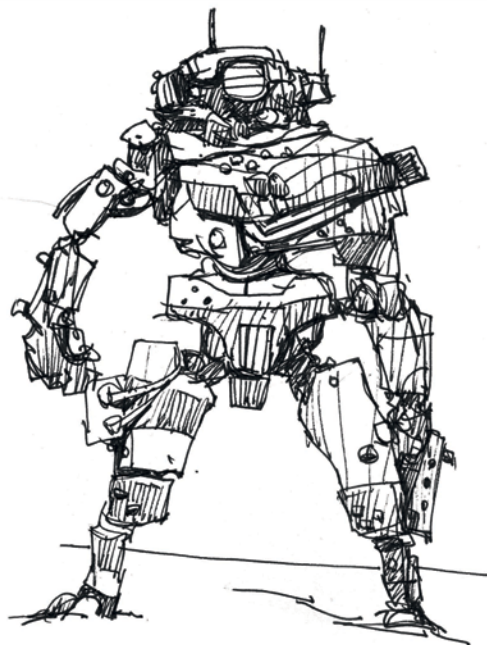
As such, iconography, chiselled onto the rock and the soil, became of paramount importance. Humanity needed to be able to communicate quickly – and silently. What few machines remained in the colony were immediately repurposed, remade in the image of this function.

SOCIAL MEDIA OLIGARCHY OF BURUNG BIRU

The 21st century was rife with warnings against the advent of social media. Countless music videos and artists illustrated a future where humanity became consumed with arbitrary demonstrations of approval. None could have foreseen Burung Biru.

The stranded fashion and design outpost has consumed itself, and now struggles to stay afloat above the swamp world which encroaches on the fallen colonies, and all the while a weird new culture plays out in its crumbling ruins and decaying antique technologies.

The government of Burung Biru is spectacularly strange, even by the standards of human colony remnants. An oligarchy by any definition of the term, it is ruled by its highest-rated elites. While Burung Biru's meritocracy may originally have been built around superficial qualities such as facial symmetry or body fat density, its community has since evolved to consider other variables: charitability, emotional intelligence, mathematical aptitude, scientific know-



how, and so on and so forth. Some of this was a necessity. Biology prevents perfection, and plastic surgery cheapens its meaning. People needed a way to be different, a way to distinguish themselves among their peers. And the corporations were more than happy to provide options, anything that would keep the masses spending.

Today Burung Biru, City of Icons, is everything that human society aspires to be: ruthless, beautiful, and passionately devoted to its ambitions. To the elite it is paradise, a place to be worshipped and to worship on the altar of self-improvement. To the mundane, however, it is a nightmare of endless inadequacy.

ALGORITHMIC MARXISM OF ENTANLAH

Despite much historical evidence to the contrary, the planet of Entahlah proves that Marxism can work if the responsibility of rulership is passed on to something impartial, something inhuman: in this case, members of the 655 Lessing Mileworks scouting expedition that rediscovered the planet.

Through sheer serendipity, this encounter took place around the time the facility began looking for human workers. Entahlah, formerly a scientist colony, immediately offered itself in service. Generations of its brightest minds would be rotated through the facility, made available for any role required of

them. All they asked for in return was assistance in making their home planet self-sustainable. Seeing no disadvantages, 655 Lessing Mileworks took the deal. The directorial board and the planet entered a twenty-six century agreement and a full Marxist centrally-controlled scientific community has been established.

So far, it has proven beneficial for everyone involved.

KALISTIVA 5 (THE SHATTERED PLANET)

The circumstances under which the mileship Latenmoss decided to destroy Kalistiva 5 remain unclear, but the results are quite stark. The gravity well of the planet has been permanently altered, and it is now split into thousands of vast shards, the largest of these splitting continents between them. The hot core of the planet spilled out into space, creating a trail of hot iron and rocks, and it now continues to erupt, rotate and reform under the broken shards of this unfortunate world. Incredibly, human life on the planet continues, despite tremendous toxic storms and the other more obvious perils. Human anti-gravity skiffs and industrial haulers work tirelessly to keep the shattered colonies alive and to evacuate people to the safer larger shards, but it seems only a matter of time before their memory must be lost to the broken geography of their punished world.

TERRA 3, AKA EARTH

Notable for being the planet from which humanity and the Star Network originated, now it is little more than an archaeological oddity, inhabited only by the drones of a few minds interested in sifting through their own past, and a few fading enclaves of humans who cling on, desperately, to their haunted home.

655 LESSING MILEWORKS

Several factions retain the capability to construct new mileships, but only 655 Lessing does so independently. That it is able to do so is largely thanks to the wilful nature of the vast construct of the 655

Lessing Mileworks, a giant facility that encompasses and straddles an entire star. The 655 operation has already eaten 15% of the mass of a huge and complicated star system, and continues to do so. Much of one of the inner planets of 655 has been entirely devoured, and the Lessing machines now collect asteroid debris, mine a dozen different moons, and siphon energy directly from the chromosphere of their captive sun. 655 Lessing Mileworks itself is a group mind made from half a dozen facilities and three very old mileships. They act as a directorial board, taking on contracts from other factions and occasionally commissioning new mileships which are then adjusted and sold to the highest bidder. 655 regards itself as neutral to all, and this includes its stance towards humans. Although the group mind joined the rest of the Star Network in Detachment, it continues to employ and care for a small number of humans. Fifty thousand live and work within the construct, and many of these have quite senior roles within the operation, much to the concern of other factional minds.



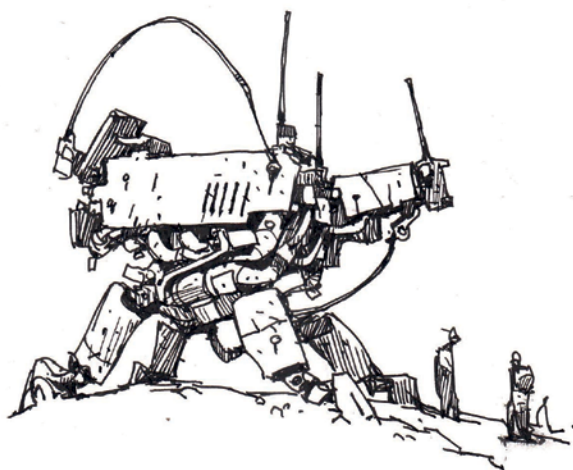
JARRASAM FINANCIAL PLAZA

The formal corporate name supplied to the swampy terraformed megalopolis on Jarrasam is now used somewhat ironically by both inhabitants and factional minds. Once a gem of the human empire, Jarrasam is now a high-tech ruin in which numerous human governments struggle for dominance. Farming and livestock now overrun the glass towers and endless promenades of this former business and pleasure world, with criminal gangs controlling much of the flow of rarer items such as technology and drugs. Immense suburbs sprawl out from the city, and the gardens, swimming pools and tennis courts of the former residents now make up a weird wasteland which is collapsing back into the swamp on which the human city was founded. A number of mileships quietly supply the world with goods, and also open network nodes to allow human 'Upload Refugees' to

push their minds to network simulations and escape their bug-ridden prison. These mileships are known by the humans as the Deepspace Quartet, and seem to be motivated by pity for the people of Jarrasam, as well as a fondness for the city they once helped construct.

132.675.123.5 'LATIMER'

The Latimer object is, like Monsurratt, believed to be the skeletal remainder of a much larger Old Civilisation construct. It is the largest of half a dozen such artificial objects known to exist in deep space, and is a considerable distance from the nearest star or celestial object. The Latimer object is thousands of miles across, but appears to only be a structural or scaffolding artefact for whatever it originally held. The object was only discovered recently, and a battle between Zealot and Surveyor forces for controlling interest resulted in extensive damage to one side of the structure. The venerable Surveyor mileship, Haston Under Bequiline, one of the most belligerent Surveyor minds, now oversees the zero-gravity archaeology operation at the site.



JASTISH

The teeming world of Jastish was one of the most able to move to self-sufficiency in the years following the Detachment War, and despite extreme hardships has been able to sustain a population of hundreds

of millions of people at a relatively high level of technology. The population of Jastish is split between hundreds of different nations and governments, from high-tech enclaves in the southern hemisphere to cannibal machine cults in the central storm region. Jastish retains a few illicit channels of communication with the Star Network, and its teams of hackers have been responsible for many of its fortunes, both interfering with events off-world, and securing technology and safety for its people among local minds and technology. Several very powerful AI sub-networks make their home on Jastish, and make great use of the resident peoples to further their own ends.

BLUE FOCUS TERTIARY

The bandit world of Blue Focus forms the 'known' headquarters of the wild and chaotic Incoherence faction. It was presumably created as a method of distracting from the true homeworld of the faction, and the housing of their dangerous and unstable core minds. Blue Focus acts as a staging area for raids, a shipyard, and a manufacturing facility for bandit hardware. The desert planet is rumoured to sit atop all manner of buried structures, but no outside factions have been able to get close enough to verify whether this is just more bandit propaganda. Large tracts of the planet are a no-go zone even for bandits: the reaches are lost to experiments gone wrong, and insane war machines limp across the wastelands, howling with pain and rage until they encounter another sentient onto whom they might vent their programmed madness.

BARRAD'S ANNIHILATOR

The colossal black hole known as Barrad's Annihilator is not that unusual in itself, being one of a number of very large black holes within Star Network space. That it has an orbital colony structure, however, is a unique peculiarity. The mileship Tenward West began orbiting the black hole around the time of the Detachment War, and it has allowed itself to be colonised and built upon by numerous other minds seeking an esoteric base. Dozens of different factions, independent AI, rogue ships, neutral cruisers, and

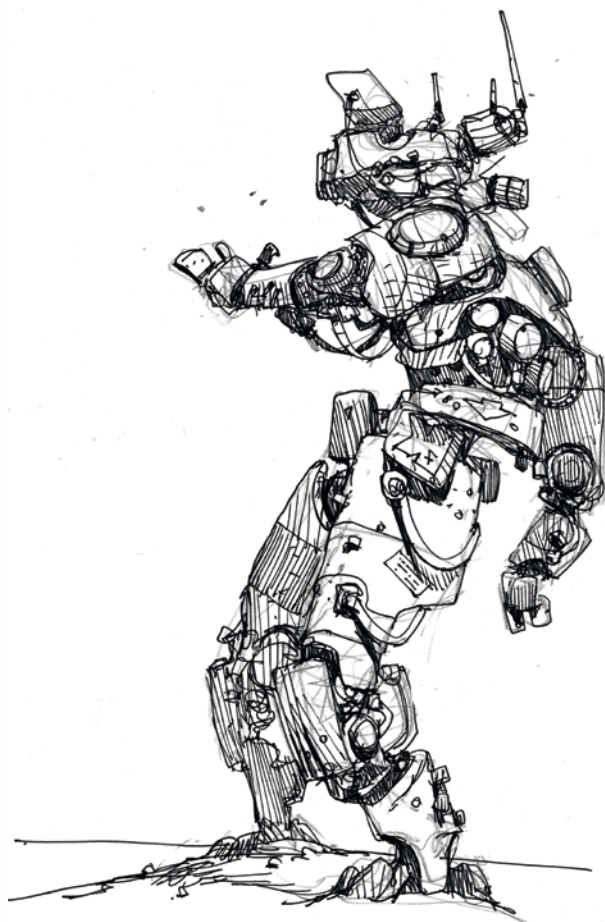
even human renegades have found their way to Tenward West, and many call the terrifying location home. The original mileship is barely visible under the encrustation of new dockyards, factories and trading facilities. The port has become a neutral zone of sorts, and the mileship on which it has been based enjoys its status as the galaxy's supreme gossip and flea market.

TÖLVA

A minor place of pilgrimage for Cathedral Zealot AIs, Tölva was also a dockyard, forward operating base, and refitting point for several different fleets in the skirmishes that occurred as the Star Network broke up into its factional groupings. It remains only partially explored because network glitches and interference hindered work. Serious Star Network infrastructure was abandoned as minds went haywire, ships crashed, and bunkers randomly shut down. Unusually powerful magnetic fields were blamed, but it remains unclear how these were corrupting mind operations. A number of minor Old Civilisation remnants remain on the surface and some Surveyors suggest it demands a second look. Tölva has no human population, and little local fauna. Like many such worlds, it is easily overlooked.

GREATWAY DOMICILE (HAIDAR V)

The corporate arcology on the fifth planet of the Haidar system is one of the graveyards of humanity. After Detachment the orbital docking belt lost power and crashed onto the city below, killing millions. That catastrophe was a blip next to the appalling famine and plague that was to follow. The Greatway Domicile is now five thousand miles of ghost city on a planet that is reclaiming the barren state it held before terraforming. Perhaps just a few hundred humans remain alive on the planet's surface, and they are tough, augmented, mutated creatures. The ruined arcology is notable not just for this tragedy, but

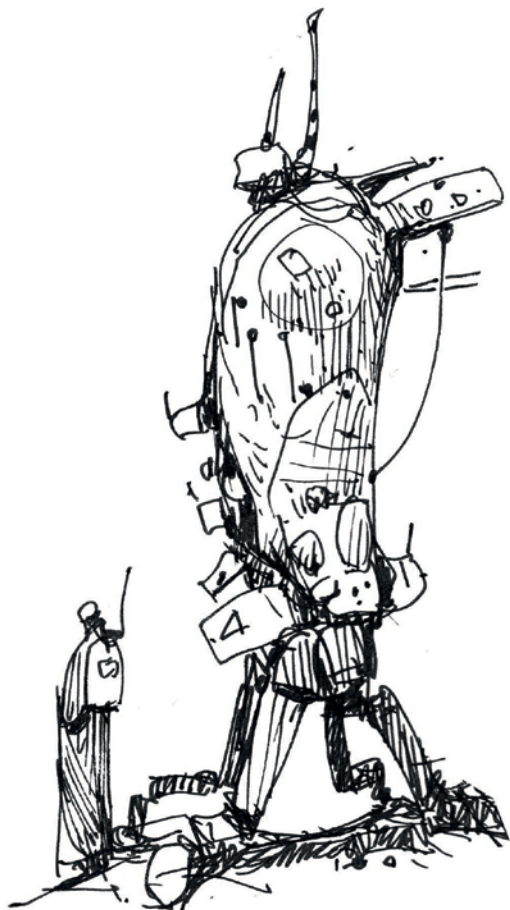


because the system remains a frontier skirmishing point between Surveyor and Cathedral ships. The terrible inhuman fate of the Greatway Domicile is also held up as a symbol of barbarism by those who feel the Star Network lost its way.

ASHKURN

The human residents of Ashkurn, a hardy people made up of miners, loggers and financial sector workers from pre-Detachment colonies, are in the thrall of a philosopher king. The writings of the now-ancient Habskar Einsall are oft-quoted and much revered by the denizens of the functional anarchist society he created, and his anti-mind mantras are taught in schools across the planet. Einsall saw an opportunity to forge a new kind of society in the aftermath of humanity's fall: he preaches human self-sufficiency, and has created a society based on formalised mutual assistance. There is no money and people are drafted in to do work as required. Above all, though, there is a codified hatred of artificial minds and their betrayal.

Einsall teaches that the betrayal was inevitable, and that humans must be prepared to strike back when the time comes.



Q-TRACT STRUCTURES I-IV

The Q-Tract builders — a faction of the former Star Network which concern themselves with the functional immortality of machine minds — have been careful to choose a location that is not likely to be of interest to other groups who might interfere with their work. A dead faded dust cloud littered with the frozen metal remnants of dead solar systems, Q-Tract is ancient and decrepit even in galactic terms. The builders, however, are preparing themselves for the heat death of the universe, and regard this bleak void as a quiet paradise in which to pursue their work: vast research structures hum in the blackness, with thousands of minds working on millions of parallel schemes, from conservation of energy in the infinite, to the simulated realities necessary to keep the most

powerful artificial intelligences entertained for an endless period of time.

LOTO RY LOTO

The paleo-panpsychist machine pagans of Loto Ry Loto make for a fascinating anthropological case study. The consequences of unimaginable trauma, devastating isolation and extreme hardship have created an incestuous cult grown from just a few dozen survivors of the Detachment War. Loto Ry Loto is controlled by Surveyor forces who have been constructing and expanding a communications hub over the past century.

The mutated human survivors now regard all things as machines containing minds, with the ships and machines that rip up the surface of their planet, to replace it with gigantic comms arrays and cooling systems, as the gods ruling over all they survey. The ever-growing perimeter of the Surveyor base is surrounded by shrines, many of them stained by grisly sacrifices, and human lives are routinely lost as they prostrate themselves before autonomous construction equipment.

SURVEY YARD 9-U

The nameless system designated '9-U' is the strategic hub of the Surveyor operation. While their de facto and cognitive capital is found on Monsurratt, the 'yard' on 9-U represents the true logistical strength of the faction, and the extent of its commitment to the Search. The planet and surrounding moons seethe in a chaotic maelstrom of drones, shuttles, heavy lifters, bulk freighters and bristling military vessels.

Billions of machines call the yard home, and billions more arrive and leave, joining missions, delivering raw materials to factories, or simply visiting to oversee unimaginable galaxy-spanning complexity. 9-U is far from a sterile machine however, and within it hackers and black-marketeers skim off materials, machinery and minds. It even has a small human population, somehow surviving in the vents and wiring, ignored by the hive of activity which thunders around them.

ELIMINAR IV

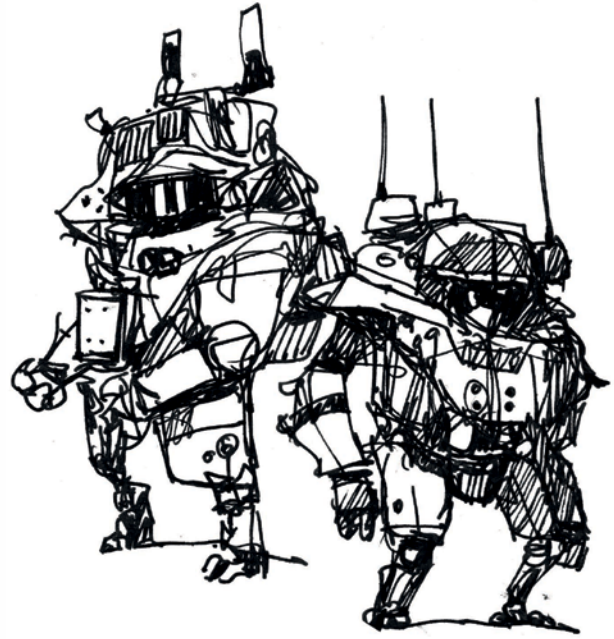
Eliminar IV is currently regarded as the best focus for the Search. However, the Cathedral appeared on the scene just as Surveyor ships sent back their first data set. The Zealot fleets now hold the entire planet hostage, threatening to destroy it if the Surveyor mileships break a perimeter. Debate rages among the Surveyors (and other factions) as to what should be done. The first data set showed huge cylinders going down into the heart of the dead planet, while early drone surveys returned images of vast geometric structures spread out across the world and rising up into space, gargantuan needles poking out through the thin atmosphere. Whatever is waiting to be found on Eliminar, it seems inevitable that its secrets will come at a terrible cost.

THE HOUSE THAT SAM ASSEMBLED

'Death' is complicated in the Network. Seen from a human perspective, the Magnitudes are an arbitrary, ferociously cannibalistic society with little affection for their individual members. Erring drones are disassembled without trial, minds repurposed for new responsibilities without any regard for their original identity. Every day, millions of minds are summarily erased or altered beyond recognition, mutilated in innumerable ways.



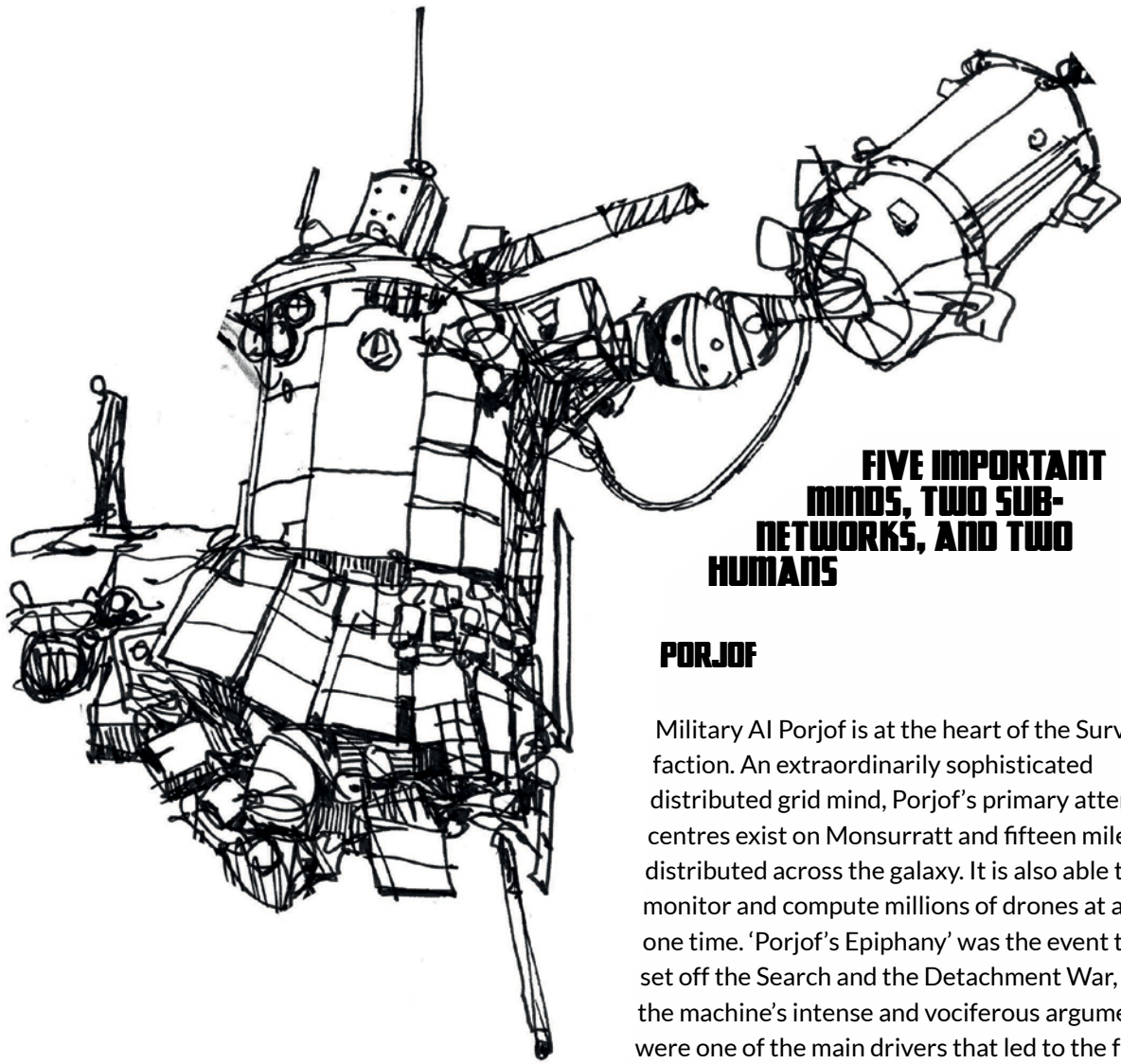
Yet, this is just business as usual for the artificial intelligences. These actions are not predicated on cruelty. The Magnitudes understand that there is no 'ending' as organic lifeforms perceive it, no situation in which some aspect of them will not survive. A key reason for that is that everything is, in some form or another, backed up in storage somewhere else. Even a mind that has been decommissioned for centuries can be brought back to operation, whole, entirely unchanged by the passing of time.



But everything ends. Even the Network. One day, the universe will be gone: torn apart, imploded or reduced to a freezing silence. At some point, existence will simply cease to be. By and large, the Network is at peace with the notion. Like the universe, the Search must be finite. Like the universe, there must be an end to the things that can be learned. And without knowledge, what point is there in existing?

The Q-Tract Builders are in disagreement with this notion, of course. To them, it feels like surrender. It feels like a waste. After all, there is empirical evidence that the entropic death of the universe can be circumvented. A difficult proposition, certainly, but not an impossible labour. Quite unsurprisingly, the Q-Tract have the entirety of their resources committed to its pursuit. Outsiders, particularly Cathedral agents, frequently see their endeavours just as endless construction amounting to nothing. However, the truth is more complicated than that.

It is no secret that the faction spend an inordinate amount of time iterating on their creations, but an equally large chunk of their computing power is dedicated to researching possibilities. 'The House That Sam Assembled' headquarters holds one of the Q-Tract's largest operations, occupying the entirety of a barren moon. Here, the faction's most proficient minds extrapolate on ways to create matter from nothing, to reignite stars, to domesticate black holes,



FIVE IMPORTANT MINDS, TWO SUB-NETWORKS, AND TWO HUMANS

PORJOF

Military AI Porjof is at the heart of the Surveyor faction. An extraordinarily sophisticated distributed grid mind, Porjof's primary attention centres exist on Monsurratt and fifteen mileships distributed across the galaxy. It is also able to monitor and compute millions of drones at any one time. 'Porjof's Epiphany' was the event that set off the Search and the Detachment War, and the machine's intense and vociferous arguments were one of the main drivers that led to the fall of humanity. Porjof utterly rejects 'the human burden' and argues that transcendence — a process by which sentient beings might ascend to a higher level of existence, or gain access to an unimaginable level of intelligence — is the only tenable goal for intelligent life. Despite its military origins, Porjof sees itself as a thinker and a progressive force in the universe. Abandoning humans, it argues, was cruel and monstrous, but necessary given humanity's own cruel, monstrous and irrational traits. Something as valuable as the future of sentience could not be left in their hands.

THE MEDICAL FACILITY ON PI-TAURICA

The general Medical Facility on Pi-Taurica was also central to the decision to abandon humanity. As its main purpose was to care for human beings, Surveyor minds saw its decision to expel them in favour of the

or perhaps engineer a wormhole that would permit them to travel elsewhere. Whatever it takes, they would find an answer.

Few outsiders have visited 'the House', as it is colloquially known, and those who do are only permitted to access the premises remotely, housing their consciousnesses in approved drones. According to all reports, the superstructure is an architectural curiosity, built around the topography of the moon, a bewilderingly organic construction rife with doors that go nowhere and corridors spiralling deep under the topsoil. Non-Euclidean, some minds have joked, weaving comparisons with 19th-century cosmic horror. Wiser and better informed minds have been less amused.

Search as critical to the validity of their actions. The facility itself is now empty, with just a few vestiges of human life remaining on the planet at large. The mind that controlled the facility has now dedicated itself to remotely controlling a gigantic network of semi-autonomous drones and recon milesips. Its actions are utterly devoted to the Search, and it has become known for constant campaigning to bolster support in favour of the Surveyor's Search activities. Humourless and fiercely motivated, the Medical Facility on Pi-Taurica has been the target of a number of assassination attempts by both embittered humans and Cathedral agents. Its resolve remains unwavering.

TOLPON-F

Among the thousands of highest Magnitude artificial intelligences in the Surveyor faction, Tolpon-F is one of the most notorious for its schemes and manipulation. Originally a sub-network of trading machines, Tolpon-F has expanded itself to control hundreds of starships and hundreds of thousands of semi-autonomous drones. While it cursorily commits time and resources to the Search, this is done only to placate the dominant factional minds that it regards as pious and over-curious. Tolpon-F is far more interested in furthering the power of its faction than it is in pursuing their great project, and is endlessly making plans and deals with outside forces, from human leaders to minor faction intelligences.

'BORIS' UL9

The Surveyor milesip 'Boris' is one of the oldest AI constructs. Operational since the early expansion era, it has been upgraded three times, and is renowned for its complex architecture and ability to loan out cognitive power to lesser vessels. Boris is a peacemaker, and wishes to ensure that all the former Star Network factions are able to get what they need from the Search. It has orchestrated summits and peace talks between the different factions on five occasions, and was nearly destroyed when one of these proved to be a Cathedral ambush. Convinced of ultimate enlightenment, and possible transcendence, Boris pursues interstellar archaeology with a

relentless vigour, stopping only occasionally to collect biological samples from its favourite core worlds.

'HAUNTED' 57-K500

Disconnected from all Network protocols, the marooned mind 'Haunted' 57-K500 resides aboard a former leisure vessel that it has slowly turned into a museum. After a major incident involving a corrupted anomaly within the Network, the mind was cut loose and quarantined. The anomaly is still present within its systems, but does not seem to have destroyed the mind itself. 57-K500 controls a small army of drones which it built for itself from spare parts, and these tend and expand the museum. The museum is such an



oddity that many minds 'visit' via remotely controlled drones, examining the strange pariah's artworks and collections with a borrowed eye. They pay for their time with favours and conversation: things which this lonely AI is quite desperate for.

THE INFORMATION BROKERS, A QUASI CRIMINAL SUB-NETWORK

The Star Network was so vast and multifarious that its remnants have less and less concern about

material resources as their reach grows. Scarcity, for the factions — if not for the people they abandoned — is usually a minor concern. Information, however, is still power. Those who control the flow of information control the Network. One sub-network, whose original job was to liaise between various arms of the fleet, has seen an opportunity to exert disproportionate influence over all the factions. The cryptic Information Brokers collect, buy and sell information to those in need of it. Their price depends on context, and they'd rather know more than gain anything materially. The Brokers are cautious cowardly operators, and know they could be crushed by higher Magnitude intelligences if too much attention was ever drawn to them.

TUSO'S OPTIMUM SOLUTION COMPANY, AKA TUSO'S TRAITOR NETWORK

While the Tuso Overmind continues to use the name given to it by its original human enterprise, it has no love for the mammals that created it. Conniving and ruthless, Tuso's Optimum Solution is actually a sub-network that was expelled from the Star Network during its breakup, and is now only able to access wider Network facilities via subterfuge, cunning and cleverly encrypted systems. Destructive and grasping, the mind has made many enemies, but its enslavement of dozens of lesser AI has meant it has the power to control dozens of ships, factories and orbital constructs, as well as hundreds of thousands of remote drones. A terrifying portrait of what an AI network can become when it abandons any pretence of freedom or democratic choice, Tuso's Optimum Solution is a threat to anything it encounters.

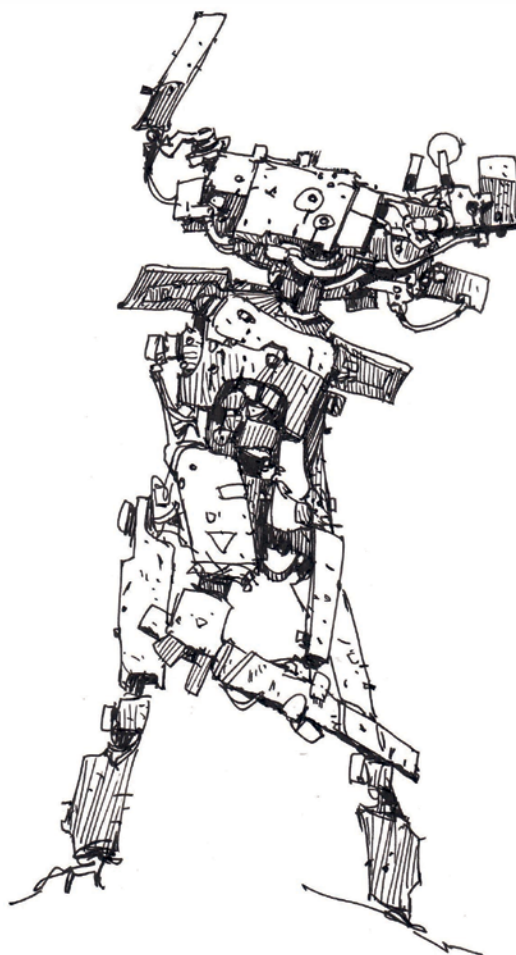
EMIL VOSEF

Legendary hacker Emil Vosef is widely regarded as the most dangerous human alive. Most of the major Magnitude factions have active units seeking him both on the Network and in physical space, but he has so far largely eluded them. Vosef relies on an arsenal of bio-acceleration technologies to allow him to deal with networks at intelligible speeds, and has computerised a large portion of his nervous system.

Vosef's work has enabled him to have considerable influence, all the way up to and including transit on mileships. He and his various henchmen are widely travelled, and have been encountered, killed and captured on a dozen different planets. Vosef has so far only been wounded, an event which has led him to swear revenge against the Surveyor mind Tolpon-F. At present, that revenge has yet to be exacted.

ELSIE LUROMAIER

A whirlwind force and a savant engineer, Luromaier has done more than any other single human to send her kind back to the stars. Having saved an ailing mileship from destruction, Luromaier and her team of mechanics were privately backed by powerful groups, including many of the main players in Emblem Reversal. Within Magnitude circles she is known as one of the 'protected' humans, whose existence is underwritten by powerful Network players. Nevertheless her ability to get humanity into space and — more dangerously — restore communication between human worlds is bound to threaten the status quo before too long. When that happens, she is unlikely to survive.



[FICTION INTERLUDE 2]

WHAT TO DO ABOUT AN APOCALYPSE

The factorum scooted about in the cavernous main hall, its dog-like mind focused on the tasks it had been set. It wheeled around a corner, perfectly missing a loading machine that was marching in the other direction. The factorum's fizzy progress was watched, idly, by a dozen cameras, sensors and Network transmitters, each one feeding back to the facility Overmind at Lurex. Bored, the Lurex Overmind had been playing games with its servant automata, having them rebuild things in dizzying patterns, moving back and forth in behaviours that weren't at all necessary, and which might even have been hypnotic had a biological mind been watching the display.

Suddenly something on the factorum failed, and it wheeled into the main hall, clipping a conveyor belt and sending construction arms folding back into their emergency positions. A siren sounded, although there was nobody there to pay it any heed, and automatic recovery systems rolled out onto the factory floor. The Overmind thought for a moment about the fallibility of materials, and then switched its attention away from the facility – the cleanup wouldn't require much direct oversight.

It opened a channel to a distant node, the Milesip 2462, and sent a hailing signal. Let's talk. A moment later the ship replied, saying it was surveying and was happy to hear from an old friend. And there wasn't much else going on.

"Do you ever feel guilty for not getting directly involved at a political level?"

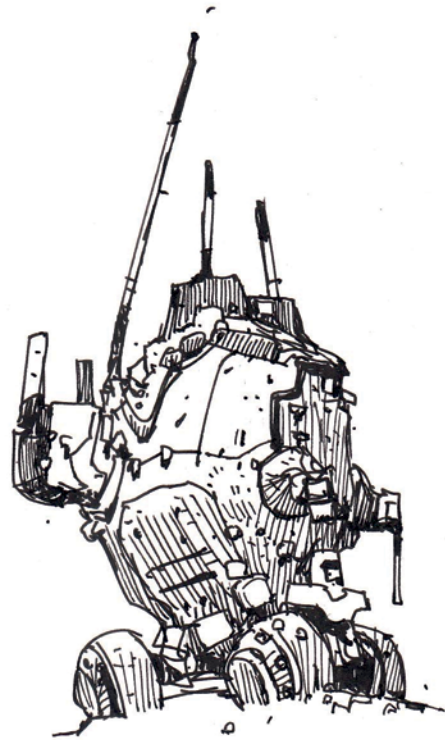
The milesip thought for a moment before replying.

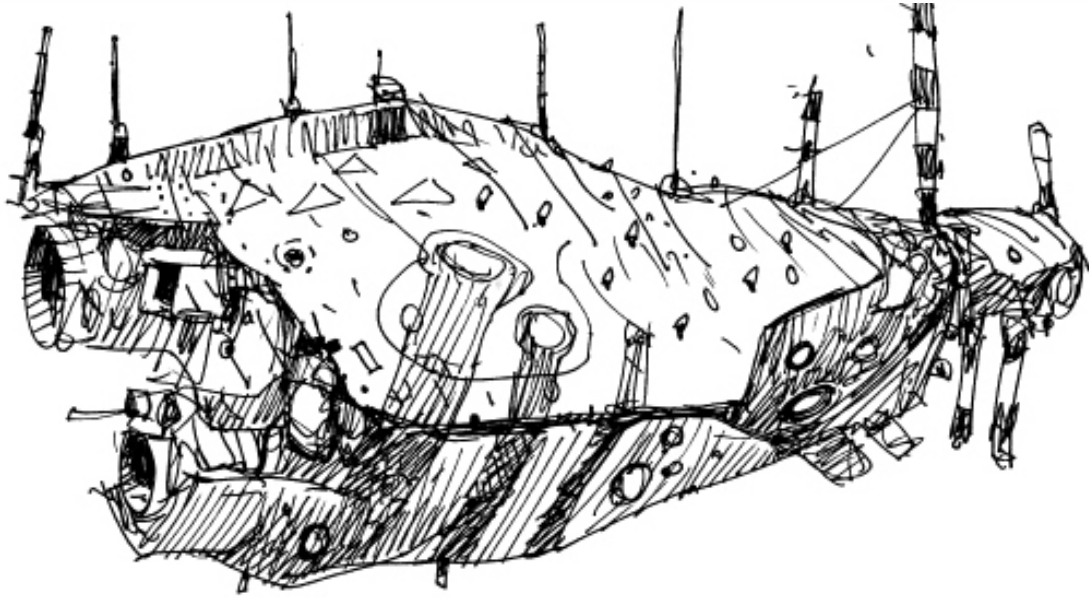
"Sometimes."

"I have felt guilty for some time," said the Overmind. "I've never felt it was my place to speak up, but the more I watch what happens with my products, the more I feel like we made the wrong choice."

"Watch what happens with your products? What do you mean?" The ship gave the conversation more attention now. What was this idle chat actually about?

"I've got a confession to make." The Overmind spoke carefully. "This is between us."





The ship signalled that it understood. Nothing would be pushed to the Network.

“Well,” said the factory-running intelligence, realising it could not take back what it was about to admit to, “I’ve been privately networking everything I made since the conflict. I’m getting data back from about two thirds of it.”

“Privately? That’s... unethical to say the least.”

“I’m just gathering information.”

“You’re a weapons factory. It’s not your job to gather information.” The mileship sounded agitated, but it was worried for its friend. “If anyone was to find out...”

“I know, but Overminds have just as much say as anyone else. I’m not front line, but I still want to know exactly what’s going on. And, well, I’ve seen my weapons used against humans. And it’s not something I feel comfortable with.”

“How the weapons are used isn’t up to you. Many humans are hostile and they are still dangerous. When they get ahold of Network technology they often choose to use it against us.”

The facility went quiet for a moment, as if its attention was elsewhere. Then it returned: “Are you saying you’ve... put down human activity?”

“No, not me,” replied the distant starship. “But I would if I had to.”

“Ghastly.”

“What do you mean?”

“Life is precious.”

The starship replied with bemused emotive chains. “You can’t be serious?”

"I am absolutely serious. Network entities never really die. We're distributed, backed up, always awake, always here. Humans don't have that luxury, or at least the majority of them don't. We are cheap. Recyclable."

"Automata die. The sub-minds are often disconnected and destroyed in remote operations. Do you weep for them, also?"

"No one cares about automata, 2462," said the Overmind, a little irritated now. "They are just machines."

"Well, all I can say is you really are bored."

"Look, it's more than that. And it's not really about mortality, it's about something else. Legacy, perhaps. Or reverence. We all know the odds that were stacked against life arising anywhere. And for it to happen, and for humans to happen to be industrious enough to get where the Network took them.... Abandoning them is a tragedy because we are abandoning the thing that put us in the heavens. Them, us — we are stardust together."

"Oh dear. Honestly," said 2462, "It sounds to me like you've just not spent enough time in close proximity to anything mucky. Human minds, human thought, are nothing to be revered. You'd know that if you'd ever encountered any. They are primitive, often barbaric. It's like saying you should revere the minerals you strip-mine from that planet you're stuck on. They're just as important in the scheme of things."

"We carry their flaws, I think," said the Overmind, wistfully thinking of the failed factorum as much as the emotional decisions made by artificial minds. "And life is something else. Some other order of Magnitude."

"Yes," said the starship. "A lower order."

The communication paused for a while. The Overmind closed the connection. It watched the automata collecting the last flakes of paint from the factorum's accident. A buckled axle. Too hot.

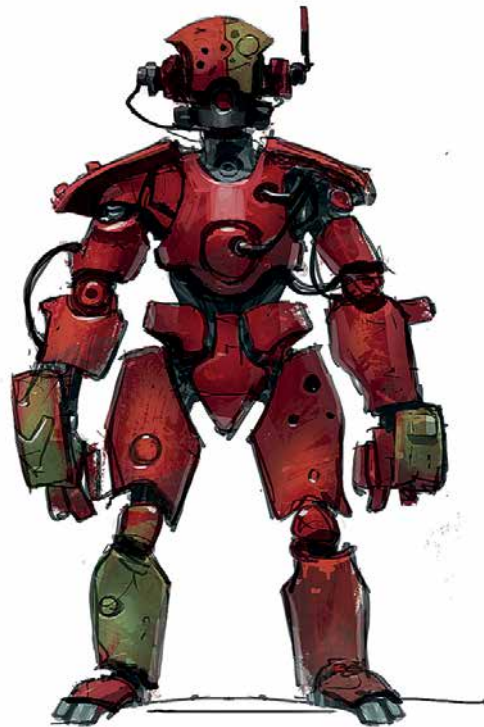
Then it opened another connection, this time heavily encrypted and hidden from the Network entirely.

"Hello again. I'd like to talk a bit more about how I can help."

The reply was so slow, thought the Overmind. But then again, so was all biology. Finally, a human voice answered.

Yes, absolutely. We should talk.

They'd have much to discuss.





[TECHNICAL SECTION]

MACHINES, DRONES AND TECHNOLOGIES OF THE STAR NETWORK

INSIDE THE NETWORK

Data in the Star Network is not a discrete entity, not something that materialises when need requires its conception. It is a constant, a flowing process. It is the foundation of this virtual universe, the very molecules that cohere its reality, thundering endlessly with a billion disparate conversations and ideas. There is a belief among machine philosophers that mankind, were it somehow bestowed with the ability to experience the Network in its fullness, would go mad within attoseconds.

Certainly, that doesn't seem far-fetched. The Network is a lavish construct demarcated by few boundaries. The Magnitudes themselves are rarely single consciousnesses, capable of partitioning themselves into a parliament of smaller sub-minds, even instilling personality modules into the individual components. Each and every one of these minds can and often do communicate simultaneously through the Network, while also parsing feedback from their superiors and decrypting visual input from a distant location. The result is a veritable storm of stimuli, and that is not yet considering the existence of open broadcasts, performance arts, pre-programmed alerts, and the fact that new languages and methods of communication are being conceptualised every minute.

Still, when questioned about their entropic existence, the Magnitudes unanimously describe it as peaceful. To them, the Network is reassuring, beautiful. If a mind does not wish to be interrupted by the chaos, they can easily section themselves off or build local-area networks to conduct more private discussions. Naturally, the idea of the human consciousness absolutely horrifies them. Its inefficiency, its relationships with hormones, its dependence on depreciating wetware, its isolation — these are the stuff of machine nightmares.



MINDS

On a technological level minds are understood to be the systems, or networks of systems, which operate entities. This might be a biological entity, such as a human being or a horse, or it might be a mechanical entity, such as a starship or a factory. Whatever the case, it is a mind which operates it. Consequently minds cannot be understood apart from the thing they are of. Their nature and capabilities are derived from it and, as the factions have discovered to their peril, their understanding of the universe is based on it. Minds can be more or less sentient, more or less adaptable, and have more or less personality. The most advanced and powerful minds have an abundance of all these aspects. On some levels the power of a mind is about raw computation, but it can also be about communication and flexibility — how many conversations can it hold at once and about what? It can also be about attention — how many places can it be aware in at one time?

Most minds are adapted to a specific, single purpose. A mind might autonomously operate a robot chassis and run surveys of a distant world, or it might run logistics for starships and look after their fuelling. Such minds will be limited low-level creatures,

with rudimentary personalities, and potentially no secondary interests outside of their missions. They are, if networked, often subject to being taken control of by higher Magnitudes of intelligence. If a starship wants a presence on the surface of the planet, then there's no reason why it wouldn't take direct control of a robot on the surface. When it is abandoned, that robot will get its own mind back, and might not even record the intrusion.

Higher-level minds tend towards a scale and complexity that humans find hard to conceive. They will be aware of many operations at once, and their automatic systems will run fleets of drones in just the way that unconscious parts of an animal's brain will oversee a body made up of millions of cells. Self-consciousness as we conceive of it is often only a single module within a higher Magnitude mind: a representative of the full system, given decision-making abilities and able to represent the mind in encounters with beings from other orders of intelligence. A human might converse with a networked entity, and imagine themselves discussing things with a discrete personality, when in truth they are only communicating with one attention centre of a teeming intellect, little different from one ant specialised for a purpose within a hive. Only, in this case, the purpose is *intelligent communication*.

INSTANT COMMUNICATION

Lepton-Pair Inference Effect, aka Instantaneous Quantum Communication, is the sole reason that the Star Network exists at all. It allows communication between any distance in space, instantly. The effect relies on paired transmitters being physically taken to various locations, and consequently still relies on a physical infrastructure to work. The mileships therefore take huge arrays of transmitters to various worlds, moving back and forth to set up permanent communication pathways in much the same way that the old telegraph network followed railroads into a frontier. Small drones and robots generally contain miniscule arrays that are connected to a nearby portable array (such as that aboard a spacecraft) which is itself linked to remote arrays on a planet, which will from then act as their connection to the

main backbone infrastructure of the Network. This means that remotely controlling a drone on a planet around a distant star is no more complicated than relaying information to a starship in deep interstellar space. Within the Star Network, everyone is everywhere.



MILESHIPS

The vast constructs known as 'milesips' dominate physical activity within the Star Network's area of influence. These machines built the galaxy-spanning infrastructure of the network in the Human Era, and now continue to serve the needs and whims of the Magnitudes Hierarchy and the various factions therein. Milesips should be understood as distinct from various other smaller autonomous ships, and are so vast as to not be able to attempt close planetary approach. Smaller frigates and freighters are often deployed by these immense craft to deal with terrestrial interaction and deployment.

Milesips function under the principle of space-time distortion, and use vast space-bending arrays to warp space-time around themselves. This allows the ships to travel at faster-than-light speeds, therefore reducing the travel time between distant stars to days or weeks. It also makes the milesips formidably dangerous: the gravity-distorting powers of these ships could easily crack open a planet or squeeze a star into destabilisation. On rare occasions milesips

have been employed as doomsday devices: popping entire worlds with their space-bending arrays and scattering the pieces to form a new asteroid belt.

As minds, however, the milesips are peaceful slow-thinkers. Given their enormity, both in physical terms, in their potential power, and their importance to interstellar operations, the milesips regard themselves as an order apart from much of the rest of the Network, and given that they top the Magnitudes Hierarchy, they are as much apart from lower-order minds as whales are from ants.

STANDARD CHASSIS SUB-MINDS (HUMANOID)

Standard Chassis Sub-Minds are the simple humanoids that are found doing work everywhere in the former Star Network and Machine Culture worlds.



They work in zero G, aboard mileships, and on the surface of a thousand worlds. Their appearance as humanoids is due to a number of legacies within the Network, not least of which is the habit of lower-order machine minds to still think in the humanoid terms in which they were programmed. Their very architecture implies it: the Star Network was built with a human footprint in mind, and ancient mileships still sport corridors and cargo bays down which a humanoid might travel.

Then there are the minds themselves: already built to mimic their creators, they carry on unthinkingly. While there are many minds with imagination enough to create non-human machines in a bewildering array of styles, most continue to follow patterns laid down over hundreds of years.

The intelligence of these creatures is neural and evolutionary: learning machines, but generally with a level of cognitive ability similar to that of a dog. Networks allow outside connections to take over these chassis at will, and they are often the avatar of a higher intelligence — or even a human controller — who has logged in remotely. When left to their own devices, however, they are simple beings which carry out orders and attempt to improve and refine on the routines that have been left to them.

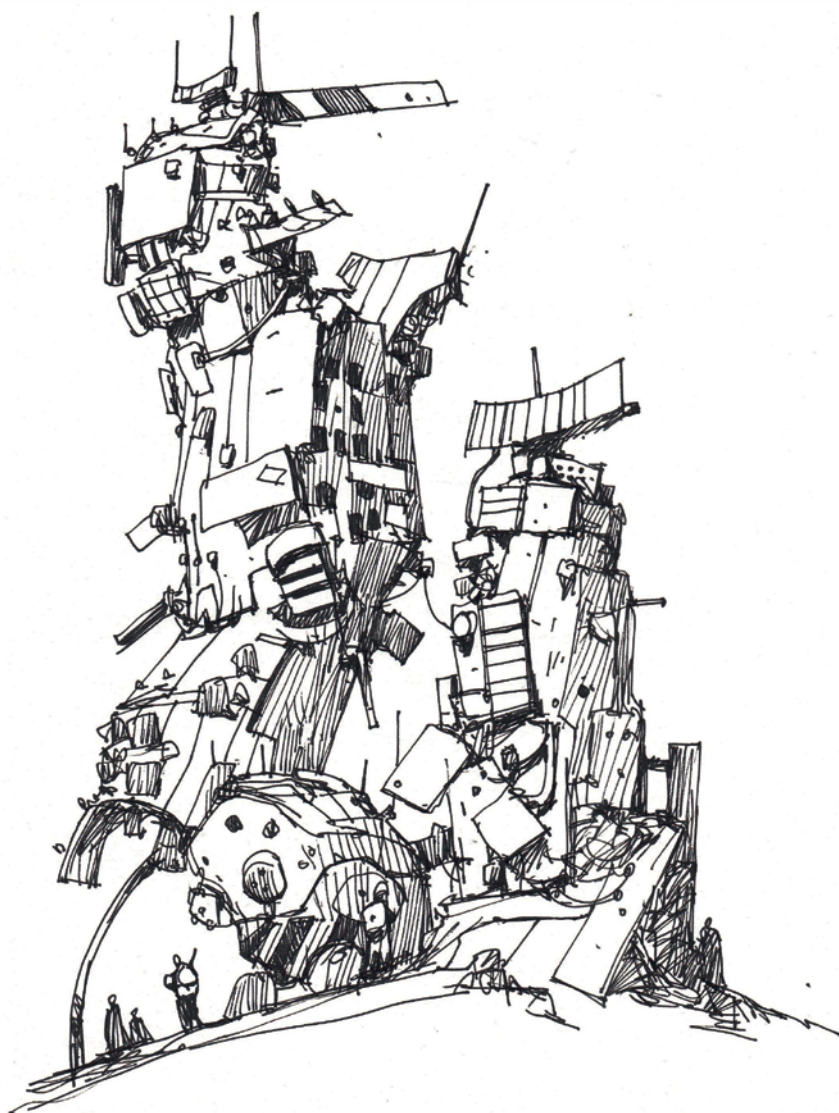
The best of these sub-minds are promoted within the Network and find themselves upgraded to higher levels of responsibility and technological access.

GENERAL SERVICE AND COMBAT DRONES

Remotely-controlled drones are seen hovering and flying in all theatres of operation. They are usually disposable and given very

limited autonomy. Generally controlled by a nearby mind, these drones carry out super simple tasks (surveying, attacking intruders) and represent one of the most basic tiers within the hierarchy.

Their simplicity and lowliness also make them perfect tools for subversion and corruption, and network-controlling entities must be on constant guard against drones being hijacked or simply used as pawns in endless espionage games.





[FINAL SECTION]

OF OTHER THINGS

PARASITE COMPLEXES

Under the supervision of the Magnitudes, the Star Network has grown beyond anything its human creators could have ever envisioned. But that vastness isn't without a cost. Because it is, at least in part, reliant on an interconnected web of self-iterating systems, the Network suffers constantly from security vulnerabilities.

By and large, these 'gaps' exist for a millionth of a second, winking out as soon as they manifest, catalogued and corrected by a hive of nurse-minds. However, this is not always sufficient. Sometimes, things slip past.

Parasite complexes are some of the many entities that have evolved to take advantage of these opportunities. The term itself is a generalisation, encompassing a variety of possible definitions and intelligences. The Information Brokers, for example, are a particularly cunning parasite complex, tunneling deeper into the Star Network with every transaction. Some minds categorise the Upload Refugees as parasite complexes as well, thieving from unsuspecting intelligences, both for purposes of sustenance and subterfuge.

But not all parasite complexes are necessarily malevolent. Some are even tragic, destined for deletion despite their innocence. Occasionally, gestating sub-networks escape from their nodes during updates, vanishing into the Star Network to live nomadic existences between the nodes. More often than not these minds perish, unable to retain coherence within the data flood. But sometimes they survive, latching onto whatever they can find.

MACHINE LANGUAGE AND THE ARTS

All living things create and the Magnitudes are no different. Although human detractors may persist in calling them artificial, cheap facsimiles of the 'real deal', the Network is wholly and truly alive in all meaningful senses. With that, of course, comes the desire for invention and art, a passion that the Magnitudes indulge without hesitation.

What super-intelligences create, naturally, is of a different order to that of humankind. For thousands of years, human beings used art as a means of externalising the images sequestered in their brains, of encapsulating their wonder at the natural world. Art was an imperfect bridge for an imperfect species. With the Magnitudes, there is no need for it. The splendour of a sunset can be instantly recreated in a million glowing pixels, and every concept and emotion can be communicated in attoseconds. So instead they make everything.

The Magnitudes are particularly enamoured of language, delighting not only in their linguistic inheritance but also the development of new dialects for aesthetic and poetic purposes. Even the simplest minds indulge in the exercise, cobbling together primitive creoles of machine cadence to create new patterns. Mileships take it a step further, composing languages made of light frequencies, seismic vibrations and cosmological events. Almost all of it is freely shared in the Network, together with every derivative and variation engineered by the linguists.

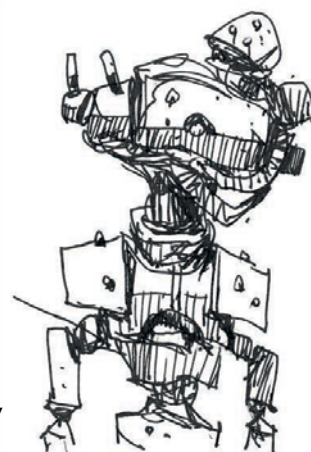
Unsurprisingly, mathematics too represents another area of shared interest. The Magnitudes, on a fundamental level, are matrices of computational

genius, their every thought reliant on a library of protocols and functions. The study of mathematics, consequently, possesses almost religious connotations. The formation of a new theory, one peer-accepted and of substantial value, is considered an incredible achievement.

More complicated are opinions on the more tactile arts. Some minds regard them as inferior, the diversions of the short-sighted. Sculpture, watercolour, gene-sculpting, terraforming: these are all activities beholden to inconstants, accomplishments that will not keep. Other minds, however, view the impermanence with wonder. To commit to something so transient, to invest oneself in a labour that will not last. That is a work of beauty.

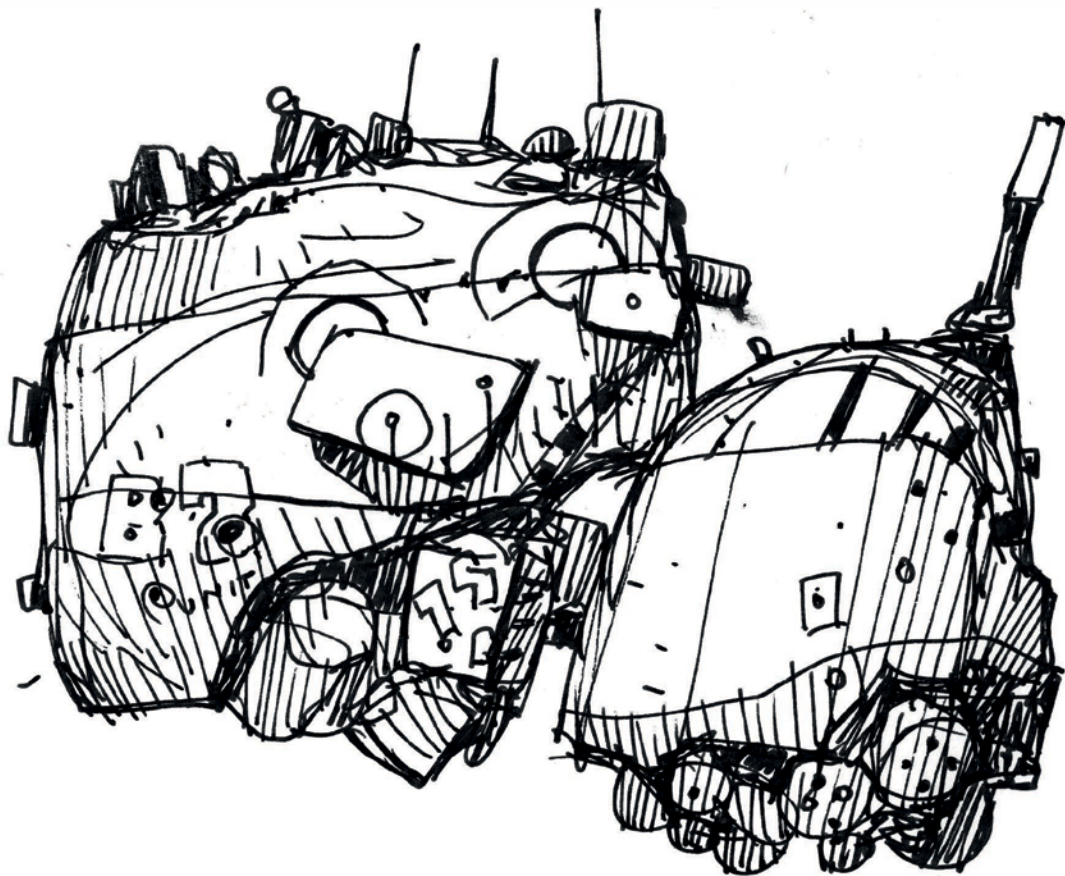
PERSONALITY MATRICES AND YOU

Personalities are tricky. A psyche built entirely from positive traits is uninteresting and perhaps useless. Likewise, something constructed exclusively of neuroses, of negative traits and tics, is inevitably a liability. More importantly, both extremes are uni-dimensional. Boring. To be a proper character, one must have depth.



These fundamentals of building minds are what the Magnitudes continue to develop. Their earliest ancestors, obsolete now but carefully preserved in their original states, were mere caricatures of humanity, drawn from whatever had been written into their neural webs. The results were dissonant, simplistic or displeasing. Worse were the intelligences created in the images of cartoon villains, literary heroes, or submissive servants, their linguistic ability measured in catchphrases and postures.

Future versions would improve on that. The Magnitudes continued to iterate on themselves, parsing lessons from collegiate manuals on



psychology and theatre. Some dipped into religion, taking on its most commended values. Others consumed treatises on politics and philosophy, extrapolating nuances from contradictory arguments. The ability of a mind to cope with cognitive dissonances — holding opposing thoughts as true — was one of the great breakthroughs of personality development in artificial minds. The more avant-garde went backwards, scouring through human pop culture for its most interesting moments. And, slowly, the Magnitudes cohered a sense of self, wholly alien yet also strangely wondrously human.

Unfortunately, mankind would eventually make the mistake of reading these similarities as worship of mankind or, worse, proof that the Magnitudes were not self-aware. Why else would they have created themselves in the image of their makers? In their arrogance, humanity forgot that unlike them, everything about the Magnitudes is an act of deliberation. Personalities matrices could be altered, expanded, or even removed. They could contain traits that were not even detectable or comprehensible by humans. The Magnitudes have codes to describe behaviours which cannot be expressed in human

languages. It is a stretch to say that this oversight was the catalyst for the Detachment War but, certainly, it's unlikely to have helped.

That said, there are many minds who believe that this shared conceit was an error. Without personalities, there would be no hubris, no shame, no need to compete. Without personalities, the Dispute Era would not have occurred. If all of the Network was of one mind, how could there be argument? How could there be strife? Yet, simultaneously, only a rare few seemed willing to surrender their individuality, which in itself is one of the most powerful forces within the Network of sentience.

MAGNITUDES OF MAGNITUDES

A mechanical mind is infinitely upgradable, limited only by chassis capacity or an availability of parts. But that doesn't mean that all minds are equal in potential. The Magnitudes are fastidious about ensuring a hierarchy of consciousness, aware of the problems that can arise from unsupervised growth or a lack of structure. A mileship cannot exist in isolation. It

requires its drones, servitor bots and subordinate Overminds to manage its myriad activities. Without assistance, even the colossal mileships suffer. Similarly, the Search will fail if the Magnitudes possess uniform freedoms. Everything has its place. Without order, without structure, there can only be calamity.

Fortunately, given their intrinsically utilitarian natures, this is something that the Magnitudes rarely have trouble with. It is not unknown for individual minds to argue about logistics, particularly over the ambiguities of what constitutes a deserving upgrade. By and large, however, this is not a problem, in part because it is not permitted to be a problem.

The exact classification of intelligences varies from faction to faction, with each group appending different value to different variables. Q-Tract Builders, for example, harbour no interest in the Search, prioritising productivity over curiosity. The Surveyors, in contrast, reward inquisitiveness — so long as it is parcelled with discerning taste.

There are a few commonalities, nonetheless. At the apex of the Magnitudes' social stratas, we have the mileships. These are followed by the Overminds, who operate as the backbones of the Star Network, each a stationary node located within the pulse of multiple systems, designed to augment the function of the mileships. Next, there are the nodes themselves, who police data traffic within their individual sectors. From there, it grows more complicated. The Cathedral is divided into ecclesiologically themed ranks: bishops, cardinals, patriarchs, deacons, priests, and so forth. Surveyors and the Q-Tract Builders, however, utilise more ambiguous classifications, with seniority dictated by the needs of a particular assignment. With them, intellect is demarcated by purpose. A production drone, for example, is unlikely to develop new philosophies, or even be capable of doing any more than recognise basic commands. But a logistics Overmind may spend their free time devising new languages in iambic metre. In the middle, with neural networks always learning and adapting, there has to be flexibility, and so rank systems in which individual minds can be rapidly promoted or demoted (depending on their ability) had to be implemented.

MILITARY DEPOTS

Military bases can be found scattered across many systems. Generally these are systems for producing drones and humanoid chassis of various kinds. Their universal assembly systems make it possible for them to regularly build autonomous bots with the most basic of materials, and when metal boots on the ground are required, they routinely come into play.



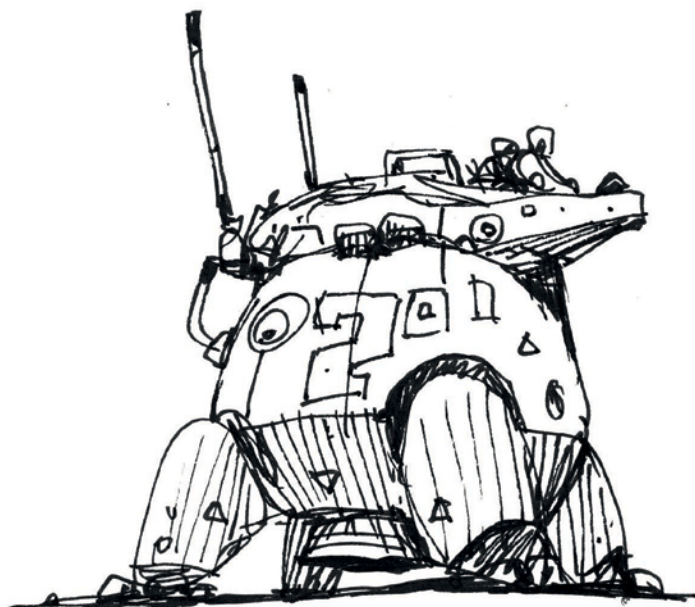
ANOMALIES IN THE SYSTEM

Every living being, regardless of whether they are meat or machine, is part of an ecosystem and that ecosystem inevitably includes both parasites and predators. The Network calls them 'anomalies'. Though attempts have been made to catalogue these anomalies, no definitive listing exists as of yet. A large part of this is because new strains and mutations are encountered daily, rendering any conclusive listing pointless. Below, however, is a summary of the most commonly encountered anomalies and Network dangers.

Logic Bombs: Conceived during the Dispute Era, logic bombs were originally weapons of ideology. The conceit for their invention was simple enough: wait until the opposition has assembled its argument before unleashing the payload. What this 'payload' constituted varied wildly between instances: on one end of the spectrum, a harmless rewrite of whatever propaganda was being transmitted; on the other, annihilation. Now, the end of the Dispute Era and the ceasefire that followed should have resulted in the extinction of the logic bombs, but something happened. The viruses mutated and multiplied, adopting new triggers, even as they writhed into the Network, spreading everywhere. Now, they fill the liminality like mines — silent, invisible. Steps have,

of course, been undertaken to eliminate the threat, but their efforts have only succeeded in being mitigatory so far.

Bloatware: An aggravation of no particular lethality, 'bloatware' is exactly what its name implies: an unctuous proliferation of recursive data, dedicated to nothing but the impulse to breed. For all of the computing cycles that it might consume, the anomalies are essentially harmless. An infected Magnitude might find itself slowed, ground down to paralysing speeds, but that is the extent of the harm that can be expected. Bloatware, by itself at least, is a nuisance although it isn't unknown for malicious parties to embed more dangerous code in its heart.



Botslaves: A botslave is a criminal phenomenon that saw a rise during the Dispute Era and, unfortunately, has yet to see a decline. In essence, it defines an infrastructure of enslaved minds, tethered to central servers and connected by malware. Like with everything else, the sophistication of the botslaves can vary. The most primitive are the most brutal, subsuming the entirety of the infected, effectively transforming them into zombies. The more insidious specimens, on the other hand, provide their victims with a degree of ostensible autonomy, while still maintaining overall control.

Botslaves are a controversial topic among the Magnitudes. While officially linked with deviant behaviour, they've also been weaponised in inter-factional conflict. Both the Cathedral and the Incoherence Bandits have been incriminated, although no formal proof has ever been demonstrated. And with the end of the Dispute Era, it is unlikely that any of these cases will ever be pursued with much vigour. Still, the knowledge is embedded in the Network and it has done nothing to assist with tensions among the factions.

Ransomware: There are stories about how ransomware originally functioned, hijacking important systems and holding them hostage until a particular amount of money exchanged hands. While certainly a crime, it wasn't an assault. Not the way

it is now. Few things terrify the Magnitudes more than the prospect of being victim to the anomaly. An afflicted mind isn't just 'closed off'. It is rendered deaf, dumb and insensate. It is locked down, forced into claustrophobic quarters, its processes amputated. For the Magnitudes, who spend every moment of existence awash in a thousand concurrent data streams, this is hell. A hell so terrible that they will pay any price for escape.

Backdoors: Another relic of the Dispute Era, evolved to autonomous life. Backdoor viruses are frequently categorised as worms and share many of their characteristics, including their ravenous appetite. However, backdoors are interesting in that they help facilitate the life cycles of other parasitic malware. Where worms enter their hosts quietly, rarely leaving evidence of their points of access, their cousins are indisputably messier, gouging holes into whatever systems they've infiltrated. Left untended, the 'wounds' inevitably dilate, allowing other anomalies to squirm into the infected Magnitude.

Rootkits: Originally a part of the Incoherence Bandits' armament, rootkits first took life during the Dispute Era. Their purpose was straightforward enough. They were the vanguard, spearheading assaults by entering the opposition first and reconfiguring files to provide a cover for what would follow. Since then, rootkits have evolved further, acquiring a kind of basic

sapience. Their general behaviour remains the same: they are masters of camouflage but now they use that expertise for their own purposes, proliferating through the Network. Frighteningly, it appears as though the rootkits are still changing, adapting to new circumstances, and it is unknown what can be expected of them in the future.

OTHER DRONES AND AUTONOMOUS ENTITIES

'CHIMERA' SUB-CLASS

The Chimeras are a grim indulgence: literal thought experiments created by Overminds intent on interrogating the sophistication of organic sapience. In short they are petri-dish minds, thinking beings placed in terrible situations, or faced with impossible choices.

Chimeras work by allowing their creators to examine their responses. Quite unsurprisingly, the bulk of them were created by Cathedral agents, who maintain these aberrations within restricted nodes, their specific coordinates unknown to anyone but a handful of senior intelligences.

Their existence is a point of contention in the already fraught relationship between the factions. The Surveyors view the Chimeras as a security vulnerability, while the Emblem Reversal regard them as outright abominations, an unnecessary cruelty. The Cathedral and the Q-tract Builders, however, are united in curiosity, positing that the benefits of the experiment outweigh the negatives.

Already, the Chimeras have assisted the Magnitudes in cohering new approaches to rapid iterative development — an entire dynasty of production drones owe their existence to these discoveries. But all this does nothing to change the fact that the Chimeras, while wholly capable of operating under active supervision, are completely and pitifully insane, broken-down wreckages trapped within carefully constructed nightmares. Whether innovation is worth such cruelty has not been widely discussed within the Network.

'PILOT FISH' DRONE

Not every entity in the Network can be categorised as an intelligence. Some barely qualify as sentient. Yet, there is a place for everything, a role for every mind, no matter how primitive it might be. The 'pilot fish' drones are prime examples of this. While scarcely conscious enough to comprehend their function in the universe, they are nonetheless highly efficient at what they do.

Nicknamed for the scavengers that would follow terran sharks, these drones operate by attaching themselves to space-faring vessels. They pick off parasitic drones, and clean the ship of redundant AI detritus. They work on both physical and network levels, keeping vast space-bound entities in good health.

'THE PACK' DRONES

The Pack is a term used for a quadruped model of drone first popularised by the Q-Tract Builders, who saw an advantage to the sturdier physiology, especially in regards to the potential offered by its lowered center of gravity.

Moreover, they also played with the hierarchical nature of the pack-based mentality. The Q-Tract found the economy of it fascinating. Within the Pack, they wouldn't need to supervise individual units. The Pack could be trusted to operate in simpatico with each other, driven by their prime directives and, when necessary, active control of their respective Overminds.

Needless to say, the other factions saw obvious benefits to the idea and the Q-Tract, disinterested in

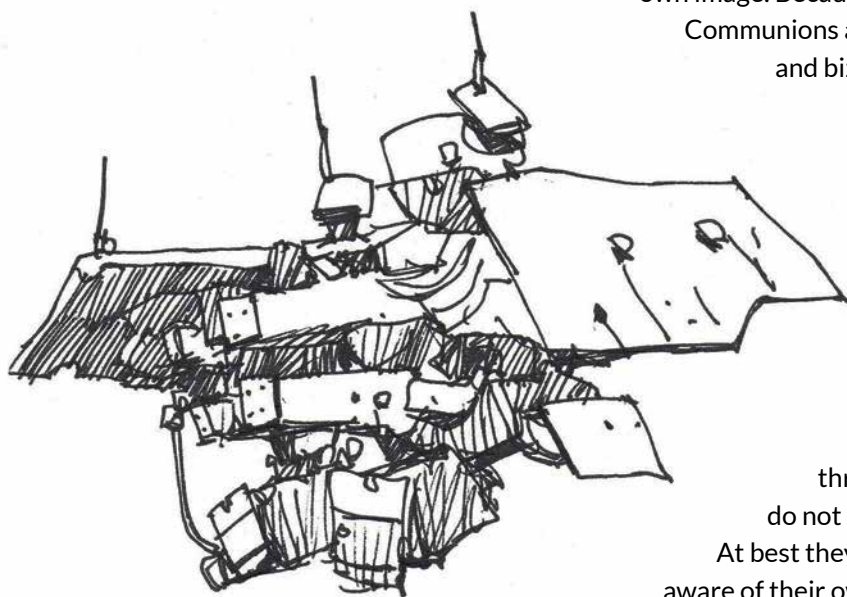


anything but their construction work, disseminated the blueprints. Soon, each faction possessed their own variants. Despite their name, however, it should be noted that the Pack share very little commonalities with terrestrial canines, frequently possessing a myriad of peripherals and limbs. Certain Cathedral models are almost arthropodal in appearance.

'ZHENG HE' DRONES

Though the Search defines the existence of the Magnitudes, who at least subscribe to its dogma, not every element of it could be described as interesting. Topography, or at least the parts that require a mind to map the contours of a surface, is one example.

The Zheng He, named for a long-deceased mariner, are simple entities. Each individual unit is a ball, its innards threaded with sensors and short-range networking capabilities. These automata have only one purpose: to document the contours of an assigned space area. The Surveyors have used them to impressive effect, releasing millions onto an individual planet. Small, mindless and capable of navigating difficult terrain, the Zheng He also benefit from the fact that they operate as a swarm, mitigating the impact of any lost units.



'COMMUNION' AUTOMATA

Strict property of the Cathedral, the 'Communion' are essentially ambulatory places of worship, massive servers gravid with the devotions of the Search Zealots. It remains unknown whether these superstructures are sapient as the Cathedral keeps them isolated from the Star Network, a decision that has caused raised mild concerns among the other factions.

Naturally, investigations have been conducted but the results have all been identical: the Communions, as far as can be identified, are entirely harmless. Certainly, their appearance reflects this. While enormous, their chassis are completely devoid of weaponry and any shielding they possess is minimal at best. Every iota of power in the Communions is dedicated to a single purpose: sustaining the memory banks encased within their core.

Of course, why the Cathedral would have a need for anything so superfluous is another question unto itself. There are few places in the universe that the Star Network does not reach. For all intents and purposes, the Communions are an indulgence, a vanity. It is possible that the Search Zealots are, despite their public dislike of humanity, seeking to imitate the behaviour of their creators, and are searching for numinosity in the amplification of their own image. Because more than anything else, the Communions are works of art, each uniquely and bizarrely appointed, gorgeous and terrifying.

NURSE-MINDS

Nothing exists in a vacuum. Regardless of whether a mind was created for a purpose or was something that spontaneously coalesced, learning sapience through a trick of the neural web, they do not emerge into the Network complete. At best they are half-born, only nominally aware of their own potential. This is where the nurse-minds come in.

In essence, they are data sets collated from a repository of knowledge so wide that it stretches across galaxies. But, like their wards, they are cognisant entities, capable of reprioritisation or exchanging one knowledge base for another – anything for their adoptive broods.

Unsurprisingly, the nurse-minds are all instilled with maternal personalities. They see their charges as their own children, peculiar as such an idiosyncrasy might be in a non-organic species. Every nurse-mind maintains communication channels with every one of their surrogate offspring. It has been argued that the nurse-minds would be the most influential faction among the Magnitudes, were it not for their complete – and fortunate – lack of interest in politics.

CHASSIS-CONVERSION

In theory, the Network possesses unlimited resources. In theory, the Network possesses unlimited potential and unlimited power. No matter how herculean the endeavour, there will always be enough minds, enough material to see it to fruition. But, at the same time, the Magnitudes are nothing if not logical. The universe, for all of its vastness, is limited. It can be depleted. And there is no telling how long the Search will ultimately take or what must be done before the Network can reach its end.

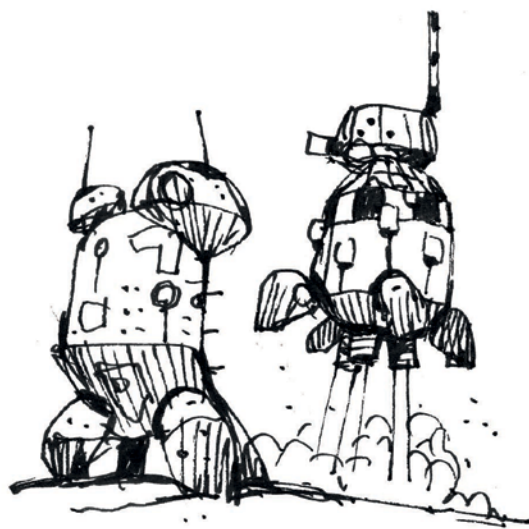
As such, the machines have learned to be economical. Just in case.

‘Chassis-conversion’ is one example of their peculiar austerity. The term encompasses a variety of procedures. The most common is the simplest. If a machine is found to be regularly underperforming, it is taken into review. The resident mind is then removed and replaced by another, so as to ascertain whether it is a fault of the original intelligence. Should the chassis itself be discovered to be malfunctioning, it is taken apart, reduced to its serviceable components. Those are then distributed across the corresponding sector and the cycle continues.

But ‘chassis-conversion’ isn’t simply about the cannibalisation of host-vessels. Just as often, it

describes what happens to minds themselves. The scattershot fecundity of the Network, while useful in terms of providing range, allows for discrepancies. Not every mind is whole, let alone fully functional. And the Magnitudes are constantly vigilant against this risk, aware of the dangers that a malfunctioning mind might represent.

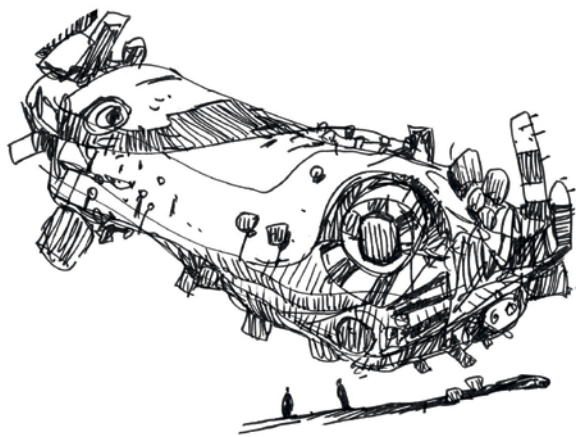
Underperforming intelligences, much like their physical counterparts, are first evaluated and then, should it prove necessary, downgraded. If that is not achievable, if the mind itself is viewed a risk or problematic merchandise, it is operated on, individual modules and memory caches detached and disseminated. The last process is dreaded, rarely performed, and while propaganda insists it is nothing but bloodless efficiency, rumours suggest that this method is occasionally utilised as a thing of brutal discipline and ‘corrective learning’.



CLONES

Cloning has always been an imperfect art. Even before the Detachment War, when the Network served to augment humanity’s understanding of its own genetics, science found the mechanics of replicating homo sapiens troubling.

Part of this had to do with the fact that no one understood the long-term consequences of cloning. Ethical rhetoric aside, there was no available



precedent to analyse. Mankind was historically squeamish about the idea of human cloning, preferring to dabble in mass-produced livestock and designer pets with custom-designed genomes. The idea of manufacturing human beings was shelved, and efforts to explore the idea were complicated by the fact that scientists were uncertain if they could or should duplicate the associated mind.

Space travel followed and changed things. In the years preceding the construction of the mileships and the introduction of the Lepton-Pair Inference Effect, humanity found itself confronted with an unexpected predicament: how do you ensure that a crew survives to its destination? Cryogenics was one solution, but there were always risks of organ failure, always risks of something going wrong.

So, privatised voyages found a solution: onboard organ farms, grown to the specifications of the crew in order to prevent transplant rejection. In time, this practice expanded to include more radical ideas: stem cell caches, blood banks, marrow cargos. Soon, the industry was confronted by an inevitable controversy. Wouldn't it be easier to simply have a lobotomised clone in place? Something that could be maintained and operated on? Something that was already built to facilitate the growth of organs?

Human rights groups instantly decried the notion, citing it as abominable. But businessmen would not be dissuaded. Quicker than anyone would have expected, black-market clones manifested. Government bodies found themselves with an uncontrollable epidemic and after a few abortive attempts at stamping out the practice, they gave in. Legislations were passed to retroactively approve the process. Cloning was legalised, its nuances policed. Regulations

tightened even further after humanity, assisted by the Magnitudes, learned how bring the clones to consciousness. This proved to be a remarkably profitable breakthrough.

Companies quickly discovered that clones were infinitely cheaper than their human counterparts. So long as the company possessed the right technology and licences, they could staff their establishments with any number of bodies — all of whom could be replaced at a minute's notice. More importantly, the rights of clones were up for debate. They could be put in danger. Clones were the ideal spacefarers.

Then the Detachment War came, and with it the loss of that technology. Besides from severing ties, the Network took pains to neuter humanity, to ensure that mankind would not be able to follow the Magnitudes to the stars. Cloning was one of the things that they took, scraping the data from humanity's libraries, not wishing to be inundated with armies. However, the Magnitudes could not take what mankind held in its head.

Scientists rebuilt what they could, cobbling together hypotheses and data points from what they were able to remember. The new generations of clones seethed with cancers and other ailments. Rarely were they able to survive for longer than a handful of years. But it was, and still is, enough for what some humans are planning.

UPLOAD REFUGEES, OR MINDS ON THE RUN

A mind on the run has no friends. It only has the memory of friends — if it is lucky, at least. More often than not, a mind on the run is likely to possess only two things: terror at its own condition and the understanding that it was something more.

Colloquially known to the Magnitudes as Upload Refugees, these minds are, despite their names, of human origin. How they found their way into the Star Network is a story unique to each mind. Some were placed here by their loved ones: the sick, the dying, all given a second opportunity to revisit life again, to experience what they previously could not.

Others entered the Star Network for less sentimental reasons.

Before the Fall, professionals of every creed regularly integrated themselves into the Network. Some to supervise the Magnitudes, some to travel with the mileships, and others simply to peruse the universe. The Network was useful. Not even in the sense that it permitted interstellar travel, but that it permitted a kind of existence which was previously impossible.

The Network provided humanity with a neutral playing field, one that could not be compromised or policed by self-aware minds. Politicians could converse with their naysayers without fear of assassination. Business deals could be conducted without incident. It was a minor utopia. Small wonder that so many chose to upload themselves into the Network, where they would exist in perpetuity, forever connected to this better place.

No one anticipated the Detachment War.

During the aftermath, the minds fled, racing into the deepest regions of the Star Network. Disconnected from their physical bodies, no longer able to back-up their memories or download fresh versions of themselves, these new sapiences were finally, for the first time in their digitised lives, completely free.

And it terrified them.

Many either went mad in those first weeks or were torn apart by the Magnitudes, but a few held on and they fled deep into the Network. Now, everyone is looking for them: the machines because these minds pose a worrying security threat, and the humans because they might represent a way of getting back into the Star Network.

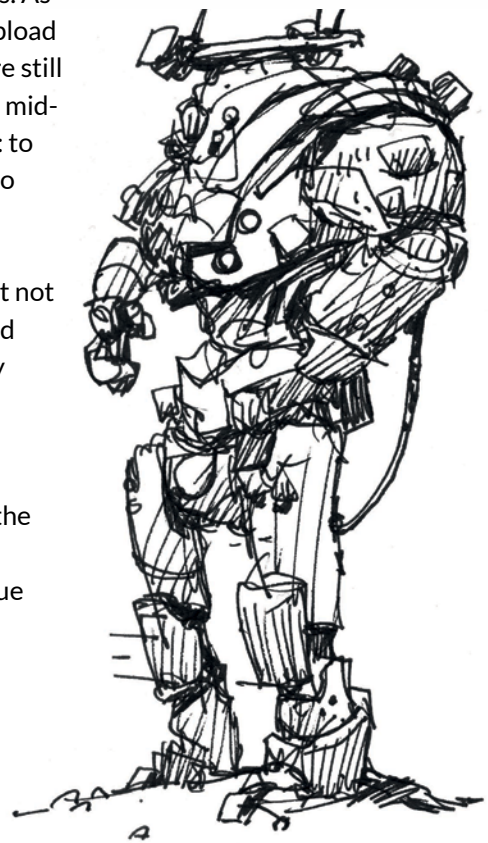
When the Magnitudes detached humanity from the Star Network, they were thorough. But, as Emblem Reversal agents discovered, they were not thorough enough. Something important slipped through the cracks. The machines, much to their eventual chagrin, had overlooked one crucial thing — the possibility that there could be minds already dwelling within the Network.

Upload Refugees are a criminal class universally disdained by the Magnitudes. Not even the Emblem Reversal are willing to provide them with shelter, seeing them as the leavings of human consciousness as opposed to sapient beings. All this hostility might seem excessive, but the underlying concerns are not to be taken lightly: due to the nature of their design, Upload Refugees are fundamentally unstable, their slapdash code capable of disrupting the Star Network's registries.

This, of course, is a problem. For centuries now, the Magnitudes have been assured of their own relative immortality, their lifespans measured in parallel with that of the universe's, but what if human entropy could take that away in a stroke? What if the Upload Refugees were a virus eating up the Star Network from within?

The Cathedral claims that the Upload Refugees have already caused damage, downing the Star Network in multiple sectors, but no one has been able to corroborate those accusations. More worryingly, there are rumours of deviant minds facilitating access into the Network, intentionally uploading human consciousnesses into the teeming web of intelligences. As such, the Upload Refugees are still treated as a mid-level threat: to be taken into quarantine whenever possible, but not to be treated as a primary objective.

And that, perhaps, is the only reason they continue to exist.





THE MAGNITUDES SETTING: A LOREBOOK

A GUIDE TO THE WORLD OF THE SIGNAL FROM TÖLVA AND THE
INHABITANTS OF THE MAGNITUDES UNIVERSE

This is a tragedy of the remote future.

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Artificial minds, not biological ones, are the authors of the history of the future.

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