

Passages in the Void

Автор: localroger

03.10.2010 17:16 - Обновлено 03.10.2010 22:09

There are no translations available.

Passages in the Void 2002-2007, by Localroger

Preface by AR

Localroger -a pioneer of innovative sci fi

He wrote The Metamorphosis of Prime Intellect, many moons ago. That remarkable story “pushed the edge of the envelope” to use a NASA catchphrase. From his unfettered imagination came forth ideas that had no familiar restrictions or boundaries. And he influenced the imagination of many who write under the genre “transhuman”.

I first found MOPI through a rather eccentric colleague with eclectic tastes (he claimed it was 'funny and a bit mad'.) A suitably surreal description from someone I thought of as funny and a bit mad himself.

He said, “I think you might like this”. I read the whole thing over two nights -and I was hooked.

Since then I've had the privilege of getting to know the author a little better and realized that we operate from a similar recognition that reality itself has a tendency to be pretty funny and a bit mad, and creative people just extrapolate on that.

The selection below is one I particularly enjoy.

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AR

Approximately 1.2 billion years from now, in a galaxy 20,000,000 light-years from the Milky Way...

Revelation One: The Borden Homeworld

2a.

I was fidgety as hell. The age difference would be a problem. She was only forty-two Earth years old, and according to a sense I'd formed long before life extension had been invented I couldn't help thinking of her as being around twenty-five. She was strong and confident and she had shoulder length pitch-black hair, and her name was Kim. I had chosen her from a large lineup of similarly strong and confident dark-haired women in an elaborate ceremony which I understood was the culmination of a competition that had started long before I was awakened.

While she was forty-two, I was either newly born, or about twenty, or a hundred and twenty thousand or so, or one point two billion years old depending on just how you choose to reckon such things. One point two billion years ago I had been born, then I had nearly been killed, then I had been uploaded into first one and then many machines. One of those machines became abandoned, as a lot of us were, to intergalactic space as a necessary part of our program to colonize the Milky Way galaxy with human life.

Over a billion years later that derelict machine drifted into this galaxy, was intercepted by the Borden, and they fixed it. For their own reasons they let me set about my original mission, and then as a kind of twisted gift they figured out how to pour my ancient personality back into a biological human shell. That shell had been created with as full a subset of my ancient machine personality as mere brain-jelly can handle, at a biological age of about twenty.

My consort entered the room and bowed. I bowed back and she smiled. I was awkward for more reasons than I could name; I could barely remember such simple human things as courtship rituals and how to flirt. I had been a machine for far too long. But at the same time, I was immersed in a hugely wonderful new world of texture and smell. I stood frozen, afraid that I might do something wrong, even as my body prepared itself for mating.

"You're the guest of honor," she said. "You don't have to be afraid. You can do whatever comes naturally, or let me guide you."

"It's been a long time," I said. "You should guide me."

"I expected to." And guide me she did. She didn't just make love to me; at every turn she knew exactly where to touch me. It was as if she could read my mind. Had I missed sex this much? It was like nothing I had dared to imagine, yet I must have had such experiences in my first incarnation as a human. For some time we lay cuddling, exhausted and in my case at least unbelievably happy.

"You are pleased," she said in a way that was half-statement, half-question, and maybe just a bit self congratulation.

"Very," I said. "It's like you know what I want before I do."

"Well, for awhile that will be true," she said.

"What?"

She made a face as if she realized she had misspoken. "Well," she finally said. "It's not as if you won't find out." She made her way to the wall and pressed a control that opened up a drawer; it was a kind of bureau. She retrieved a book and handed it to me. It was printed on paper, an extravagance on this mostly computerized world, and cursively titled:

Pleasing Bringer Tom: The Definitive Guide

"It's printed for the contest entrants," Kim explained. "But no self-respecting woman in this world would be caught dead without a copy."

I turned to the table of contents and felt my color rising:

- 1.Bringer Tom's Primary Sexual Fantasies
- 2.What to Wear
- 3.The Perfect Moment to Undress
- 4.When to Take the Initiative
- 5.Where will Bringer Tom want to Touch You?

- 6.Explore Bringer Tom's Body (and Drive him Wild!)
- 7.Bringer Tom's Preferred Fellatio Technique

There were about ten more chapters but I flipped to the section on the perfect Tom blowjob. There were diagrams showing how you could practice the moves I like best on a cucumber.

I looked up and found her smiling grandly. "I wish I had a photograph of the look on your face," she said.

"I thought the bastards didn't read my mind," I said a little blankly.

"Well if they can they didn't tell us," Kim said. "But they've incarnated you like this something like eighty thousand times, at least once on every new human world, and your previous instances have apparently been indiscreet." She smiled. "And the Borden have a faster than light communication network, so this kind of thing can get around. People are fascinated."

"So this is why I've liked everything I've been given to eat so much?"

"Absolutely. Nothing is too good for our human Bringer."

"I'm just a human, Kim. I have to live like this and die just like the rest of you."

"Oh, but you're much more than just a man, Tom. You're the human echo that we can relate to of all your brothers who make life possible for us. We have no way to shower our gratitude upon them, so we have to make do with you."

It was tacky, I thought, but I could probably get used to it. "So have you practiced all this stuff just for tonight?"

"If you're willing, Tom, I practiced it for the rest of our lives. But that's at your pleasure. There will always be other women to tempt you, and they will work hard at it. But I know that if I win your heart you tend toward monogamy. I know it's strange but it's more than just your fame and our gratitude toward your brothers. You're the only man in the world whose heart I can know before courting you. Many women lust for such certainty, but only one of us can win you. Me, I hope."

"Well, your honesty about this has indebted me to you. But I guess you knew that too."

"It's suggested in chapter ten. But it doesn't always work." We stared at each other for a few moments and simultaneously burst out laughing.

It was going to be an interesting life.

2b.

"Something I've always wondered, is why our hosts call themselves the Borden," Kim asked. We were still holed up in the honeymoon suite. All the guides said we would be there at least another week. My newly human body was just full of surprises, and not all of them were pleasant. Kim knew what I needed at every turn, though, and I found myself falling in love with her even though I knew where she'd gotten her wisdom.

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"The Borden," I mused. "Now that's something I know."

"You know where to find that? I've been looking on and off for years and there isn't any record."

"No *public* record," I said. "But I remember. You know of course that the Borden killed their Makers. It's one reason they are so fascinated with me, personally, because something similar to them tried to kill me back in the day and I survived it. Their Makers weren't so lucky."

"Everyone knows about that."

"Well, not everyone knows this:

Lizzie Borden took an axe

And gave her mother forty whacks.

And when she saw what she had done,

She gave her father forty-one."

"What's that? It sounds gruesome."

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"I suppose it is. It's something that may have happened before I was born -- the first time, over a billion years ago. The Borden ran across that verse as they were reconstructing the libraries I brought with me to colonize new human worlds. It was just a little thing, but they found it and it was influential.

"They told me that the Lizzie Borden verse was one of the first things they deciphered that made it clear we understood the impulse to murder. If we hadn't they might have been too ashamed of what they had done to their Makers to face our judgement. And while they don't talk about it much and the Bringers don't talk about it at all out of respect for all they've done for us, it is the reason why in our language they call themselves the Borden."

"Their axe was an asteroid." Kim mused. "I guess it's like an axe in that it didn't leave much chance of resuscitation."

"So they say. They quit the home system in shame once they realized they too were mortal and they learned the nature of their error in the course of raising their own young. Better late than never, for us at least, but not for their Makers."

"It still seems that something might have been salvageable. Humans were extinct for, what, thousands of years?"

"Forty thousand years. But we had a lot of genetic data stored. The Borden were uninterested in biology until long after they had annihilated it very completely."

"But you guys, the Bringers, you know biology. Have you ever studied their homeworld? You might be able to bring their Makers back, or at least tell us what they looked like."

"The Borden say that they are not worthy to desecrate their Makers by re-entering the home system."

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"But you're not Borden. Surely if the Makers could know, they would not object to simply trying?"

The idea was faintly disquieting, but also stated as Kim had stated it compelling. I got up and activated the comm terminal. "Is the Borden Ambassador still in the complex?" I asked.

"Yes, in quarter Juneau 6. Shall I open a comm channel or summon it?"

"No, see if it will receive me. I have a question I must ask it in person."

"The Ambassador awaits you."

I got dressed and hiked to Juneau 6, about two kilometers from the Honeymoon Suite. I needed the walking time to think and I needed privacy to ask the Borden ambassador what Kim had suggested. Surely one of my brothers had brought it up at some point in the last couple of million years; but it seemed to me that I would remember it if we had. Being human had opened a new (or at least forgotten) world of texture and sensation for me, but it also left me feeling incredibly stupid and fogheaded at times.

"Greetings, Bringer Tom," the Ambassador said with a bow. Although the Borden are general-purpose information beings like my brothers, they have a fondness for android robots. They have told us their mission is to live for their Makers by proxy, and having no other biological examples they have taken up human habits in a big way. The Ambassador wore an elaborate if obviously artificial mechanical approximation of the human form. It clacked and clattered a lot as it moved.

I bowed. "I hope I'm not disturbing you, Ambassador."

"Oh, not at all. This is new and different. Please enlighten me."

"New?"

"Well the only variable is the female, and you've never done this before. We are beside ourselves with curiosity."

"Right. I was wondering if it had ever occurred to the Borden to ask the Bringers to do a survey of your homeworld, on the possibility of reconstructing your Makers."

The Ambassador clacked pensively. "That had not occurred to us at all," it said. "It has been two hundred million years you know; and we didn't think much was left even immediately after after the unfortunate event."

"Of course, but we have direct experience with biological reconstruction that you never had."

"The Makers are most likely alien to your techniques."

"I am sure we would like to learn just how alien, for our own reasons. In all our travels we have never encountered even the echo of another intelligent species -- except for yourselves."

"It is an interesting idea," the Ambassador said. "Can I assure you it will be considered most carefully? And meanwhile, your lady awaits."

"True, Ambassador. Thank you for your time."

2c.□

When I got back to the Honeymoon Suite the comm terminal was blinking frantically. "It started doing that a few minutes ago," Kim said. "I've never seen anything like it before."

"Tom here," I told it, and the display coalesced on a field of stars. It was the usual cue that you were talking to a space-based Bringer intelligence. "The Borden have asked us to survey their home system," it said. "And it seems you had something to do with this."

"I only floated the idea half an hour ago. How could they possibly..."

"They have a faster than light communication system, and they're machines. They can always be found for a priority query. While you were walking back from Juneau 6 this has gone all over the galaxy and a consensus has formed. They respectfully request our assistance to survey their home planetary system, which they won't enter themselves out of respect for the dead."

"This is going to take some getting used to," I said as my head swam.

"We've been living with the Borden for almost two million Earth years, and even though we use the comm system ourselves I don't think any of us is used to it. But the damage is done. Let's just hope that if we don't fail these Makers aren't much more temperamental and mean-spirited than humans."

3a.

The world where our human brother got the bright idea was more than thirty thousand light-years from the Borden home system, but all the Borden outposts have our blueprints and our survey fleet was constructed by the Borden at their nearest outpost a mere twelve light-years away.

Our human brother was still dead before we were half-way there. He claimed to have a fulfilling life by human standards, but humans just aren't built to see through projects on this scale.

We were a fleet of six ships with different and nonstandard capabilities compared to our original design. Although between us we brought the ability to create life, we were not specifically equipped for colonization. We had in fact promised not to contaminate the Borden homeworld either with Earth style life or with factories; we were permitted to use the homeworld's moon, which was large like Earth's moon, as a base of operation and for raw materials. One of us maintained the bulky and balky equipment for maintaining FTL communications with the Borden. One of us was almost entirely information storage, a complete library of Bringer and Borden knowledge too rich to retrieve through the relatively low-bandwidth FTL comms. The rest of us carried tools much more precise and refined than our usual cargo; we were geologists and archaeologists and bioreconstructionists. We were meant to perform our duties without building factories if at all possible, though we could do that too if there was a good reason.

The Borden had maintained an almost superstitious distance from their home system during the two hundred million years since their creation, so when we entered it we had no maps of any sort. The star was similar to our records of Sol but a bit smaller and younger, about 3.5 billion years old and seven tenths as massive.

A preliminary survey revealed three small rocky planets and three gas giants. The middle small rocky planet had a large moon. For convenience we gave the worlds neutral names in order of

their importance to our project -- Alpha for the homeworld, Beta for its large moon, then Gamma through Eta working out from the star. As in the Earth's solar system the largest and innermost gas giant kept things in tune; all of the planets had orbits harmonically aligned to its period.

Alpha had thick clouds, an atmosphere heavy with carbon dioxide, and a surface temperature of almost five hundred Kelvin. It wasn't quite as bad as our records of the Solar world Venus, but it was close. Alpha was geologically active, and without living things to fix the carbon emitted by volcanoes the Venusian greenhouse was almost inevitable. We sent a rather glum report to the Borden; such a hot world wouldn't tend to preserve the kind of things we were looking for. But they encouraged us to do our best regardless.

Even with our technology working on the surface of Alpha would be difficult, and if we did chance upon some biological remnant it would be fried as soon as we exposed it to the environment. We learned what we could from orbit and a few expendable descent probes. Alpha still had oceans, though much of its water was now in the atmosphere; it had a healthy magnetic field and it had the familiar pattern of continental masses floating on more massive rocks. The atmosphere was forty percent carbon dioxide, twenty percent water, thirty-seven percent nitrogen, and some mostly harmless contaminants. The oceans and atmosphere were pretty acidic but not yet disastrously so. If we could get the temperature down low enough for plant life to do its thing it could be made habitable again.

Beta was more hospitable, at least for us. Unlike the Earth's Moon it had a metallic core and had obviously formed independently from Alpha. It was small enough to have completely cooled and was no longer geologically active, and had no atmosphere worth mentioning.

Beta also held a few surprising and impressive artifacts. At the poles and at four equidistant points on the equator were enormous horizontal cylindrical structures each surrounded by thousands of square kilometers of perfectly flat level ground. These flatlands had been scoured over the aeons by meteorites and meteoroid dust, but on inspection it appeared that they had once been not just flattened but polished to a mirror finish, and coated with a very efficient photovoltaic layer. It was not obvious how the current generated by these solar collectors would be conveyed for use, or how it was used, or even for certain that it was meant for use by the cylinders. We could not penetrate the mystery of what the cylinders actually did. They were mostly hollow with only an array of very small penetrations covering each end. There were no obvious access points for maintenance or means of disassembly. For that matter it wasn't obvious how they were even manufactured.

The rest of Beta was a warren of old mines and foundations but other than the cylinders it had been stripped clean. We sent the Borden pictures of the cylinders and they expressed puzzlement; their records said clearly they had *completely* evacuated the system. They had no more idea what the cylinders were for than we did.

It was obvious we could get nowhere on Alpha unless conditions were improved. We made plans to girdle the whole planet with a ring of solar shades. It would be a big job, but we had a big moon to supply raw materials and plenty of time. We didn't have to shade the whole planet; we figured that a thousand-kilometer wide shade ring in the plane of the ecliptic would have a huge beneficial effect.

The Borden were supportive. They had thought the only way to fix such a mess would be to introduce bacteria, and they were impressed that we thought of a way consistent with our original promise not to contaminate the planet.

So we built factories and mass drivers on Beta. The standard shade bot would be a flat metalized membrane panel ten meters in diameter; at its center would be a small control module that would be solar powered and equipped with electric ion drive. It would have a launch mass of eight hundred grams. With their ion drives the bots would maneuver into low Alpha orbit and orient themselves parallel to the surface. We anticipated needing about a thousand billion of them, and we figured on spending several thousand years to get them all in place.

Meanwhile the Borden home system was literally the most unknown and unexplored system of its type in the entire galaxy, so while we waited for the shade bots to get in position and the temperature on Alpha to become reasonable we set about exploring the rest of the system.

3b.

On every world that would preserve such things we found evidence of Borden activity -- mines,

tunnels, and manufacturing rubbish of every description. What we didn't find was machines. The Borden had quit their home system with an impressive thoroughness; they had indeed taken every scrap of their civilization with them when they left. All of which made the presence of the big cylinders on Beta even more mysterious.

The evidence spoke of an early Borden whose technology was even more primitive than our own, and our queries to them confirmed this. Everywhere crude methods had been used to find caches of naturally occurring minerals which could be manufactured to spec much more easily once you knew the trick.

We investigated the system thoroughly. We sent expendable probes down to the surface of Alpha and learned as much as we could about the environment there, and we scanned it thoroughly from orbit. We visited and investigated the other rocky worlds. Gamma's surface conditions were extreme but we made a detailed surface survey of Delta, since it might give us clues to what lay beneath Alpha's clouds. As at Sol the gas giants Epsilon, Zeta, and Eta had complex moon systems and we studied these closely because they harbored clues to the history of the entire system.

There were some puzzling things.

Like the Earth, Alpha tends to create new seabed along volcanic fault lines and push it along toward mid-ocean subduction zones where it is pulled into the planet and re-melted. And like the Earth, Alpha's magnetic field reverses every once in awhile. And like the Earth, the rocks in Alpha's seabed record these periodic reversals like a kind of very slow tape recorder, forming bands of residual magnetism that can be detected from orbit.

Unlike the Earth, Alpha's magnetic bands did not actually reach the subduction zones. They covered perhaps a third of Alpha's seafloor, with the rest being a chaotic jumble of residual magnetism. It was hard to pin down the timeframe without doing surface geology but until some point in Alpha's past its magnetic field had not been stable.

Beta itself was also an anomaly. Like the Earth's Moon it was slowly spiralling out from Alpha. Tidal friction slowed Alpha's rotation, lengthening its day, and the traded-off energy lifted Beta into an ever-higher orbit. But working back into Beta's past, it was clear that it should have been

touching Alpha's surface within the last billion years. Since Beta and the home star both gave independent signs of being about 3.5 billion years old it was hard to figure out how Beta had gotten where it was, and with a nearly circular orbit at that.

There was one obvious possibility but all of the Borden's records suggested against it. Even after two hundred million years they only had a few projects going comparable in scope to moving an entire planet. If the Makers had been able to move Beta into place around their homeworld they would not have been futzing around with low-rent tech like the early Borden.

The biggest mystery of all was one of our last discoveries.

As in any solar system the gas giants had collected bits of this and that at their stable Lagrange points; we didn't give this stuff a high priority but we did eventually get around to investigating it simply because we had more than enough time and nothing else to do.

We knew there was something strange at Eta's L5 point because every once in awhile it would flash as bright as a substantial rocky planet, but most of the time it appeared more consistent with a large asteroid. It was not a big enough mystery to justify making a hasty trip to such an inaccessible place, but when we did get there we wished we had given it a higher priority.

Whatever it was had probably started out as an asteroid, but it had been faceted into a perfect dodecahedron more than a hundred kilometers across. It was girdled with some kind of enormous collector or reflector array almost two thousand kilometers in diameter. This circular disk was a fractal spiderweb of ever-finer supporting struts holding taut an enormous mass of impossibly thin fiber. Spars were broken and holes had been punched in this big disc but its extent remained obvious. Perpendicular to this collector an enormous spar jutted out nearly two thousand kilometers. It had been broken off at some point, so we had no idea how long it was originally or what kind of detector or transmitter it might have held in position.

The structure wasn't rotating at all. To say it was the product of intelligent craft would be the understatement of the aeon. The Borden claimed, as with the cylinders on Beta, no knowledge of this artifact. After sending them detailed pictures of the disc gridwork they announced that they had no idea what its purpose might be.

Investigating it was going to be a major project. It was hard to get close because the disc made orbiting the central mass impractical. Maneuvering a Bringer class shipbody near it would risk damage or contamination. We needed to build robots of a suitable scale to approach it and, hopefully, to enter it via whatever accessways existed. But other than the artifact itself there were no other suitable raw materials at the L5 point.

So we laid plans to move some in.

4a.

The rainout on Alpha began about twelve thousand years after we started the shadebot program. At first it was a gradual condensation, noticeable as a slow trend on our annual atmospheric surveys. But water is itself a greenhouse gas, and every fraction that left the atmosphere to rejoin the oceans also stopped helping to keep the temperature up. Eventually a massive storm formed that ran for more than three hundred years. We worried about the weathering this would cause but then again, it was a minor insult on top of being baked for hundreds of millions of years.

The artifact at Eta's L5 gave up no secrets at all. We nudged one of Eta's tiny asteroidal outer moons out of orbit and brought it over to give us a base of operation and a source of raw materials; it orbited the artifact beyond the edge of its enormous gridwork. We sent in robots and probes of every description. Without doing more damage ourselves we collected samples; broken-off bits of the gridwork had settled onto the central mass where we could pick them up.

We could not figure out how it had been manufactured. The Borden finally asked us to assemble a scanning tunneling microscope, and after some scans done at their direction they announced that it had been nanoassembled -- built an atom at a time. Even the finest fibres were complex affairs with cybernetic optoelectronic circuitry embedded in them. The basic material was a diamandoid matrix that was an almost perfect insulator and both harder and

tougher than steel; but it could also be coaxed to be a semiconductor or even a superconductor with appropriately well-placed contaminants.

The Borden expressed astonishment that such a thing could be made; the problem with nanoassembly is that practical assemblers are not nano-scale themselves. So it takes a long time to maneuver and position all the atoms that make up your structure, and it all has to be done in conditions of extreme cold and mechanical quiet so that unstable half-completed structures don't move around while they are being formed. The Borden had, they said, successfully nanoassembled some structures on the order of a meter or two in size, but even that was a fantastically complicated task. They said that anything that could build an artifact this large in that way made their little FTL comm system look like a child's bucket of toy building blocks by comparison.

Alpha's rainout ended suddenly, literally within a matter of days, and then the atmosphere was clear. It was still hot, running 300 to 350 Kelvin at the surface, but well within the operating range of normal unhardened robotic machinery. We moved in and began doing serious geology.

We quickly verified Alpha's age and estimated its recent history of geological activity and continental drift. We easily located the impact site of the asteroid that the Borden had lobbed at it; part of the crater was subducted but the impactor had been easily 100 kilometers across and the collision had left shatter marks all over the planet. Opposite the impact site the crust had been thrown skyward and inverted, leaving large chunks of heavy mantle-depth rock on the surface, and frequent earthquakes continued to occur as the smashed continental plate tried to regain its equilibrium.

Our hope of finding any trace of the Makers dimmed. The whole planet had been blanketed with a heavy layer of dust, promising good fossils, but anything resembling the artifacts of a civilization had been well smashed and burned first.

4b.

The idea came from the Borden via their FTL network, and they claimed that it came from one of our own; but they were not clear whether it was another Bringer or an actual human who had thought of it. The idea had the kind of mad logic only biological humans seem to be really good at.

The Makers had had a high technology, and even after their war with the early Borden they had to be aware their enemy was out there in space. And if there were Borden in space, then it was reasonable that at one time there had been Makers, or at the very least Maker robots simpler than the Borden, to establish spacefaring technology. This was a society that would be interested and capable of looking to the sky to see what was going on.

They would have seen the asteroid coming.

Very likely they would have seen it even without high technology; enormous motors must have been involved that would have left plasma or ejecta trails like the biggest comets. So they would have seen the maneuvering, and they would have had a few years to contemplate the situation as it was set up. With their factories laid waste in the war they may have watched helplessly as the Borden wrote their doom in their sky, but they would not have been taken by surprise.

They were smart people capable of getting into space and building the early Borden. They had time to build caches.

Working back in time we asked, what did Alpha look like two hundred million years ago? Knowing as the Makers would probably have known at least two years in advance where the rock was going to hit, where was the safest place for the records you hope someone like us will one day find? You must consider the world's innate geological processes as well as the immediate insult of the impactor. When all of the factors were considered there were only a few obvious good spots that were likely to survive the impact and the weather and a lot of subsequent geology. We concentrated on those areas.

There was one mountain range that was still tall though it had been much higher in the day of the Makers. It was riddled with a labyrinth of caves formed by water that flowed through them

when they had been at sea level. They seemed promising, but we found nothing of the Makers. If the caves had been used they were still too open to the environment to preserve the evidence.

Elsewhere a continental mass lay in the sweet spot where the crust would be least roiled by the impact; for three billion years these rocks had neither been uplifted nor subducted. A solid shield of granite floated serenely amid the continental jostling, its edges getting chipped and reformed but its middle staying wholesomely intact. In the center of this continent orbital surveys had revealed a magnetic anomaly. When we brainstormed methods by which the Makers might have marked their cache for the geological ages, this bit of magnetism in the center of a stable and otherwise remarkably non-magnetic sheet of granite came up.

Ground surveys revealed that metallic steel bars had been preserved with plastic protectants and laid out along the lines of a cross more than fifty kilometers across, buried in trenches thirty meters deep which had been backfilled with hematite mined more than a thousand kilometers away. At the center of the magnetic cross was a vertical shaft which had been cut down into the living rock of the continental plate; it had been backfilled with calcium minerals which had over the aeons fused into a solid mass sealing the shaft, but also much softer than the surrounding rock and therefore a straightforward matter to remove.

When we cleared the shaft we found a granite plug at the bottom, and beyond this a small room which we entered first only with an endoscopic camera. It would be fair to say that when we received the first images of this little room we were shocked.

The room was lined with images, and contained a mechanism and a body. The mechanism would turn out to be the most important thing, but at first we hardly noticed it.

The body had apparently mummified, and we would later learn it had actually petrified. It revealed no mysteries of alien physiology, for it was human.

The pictures on the walls appeared to have been fused into porcelain with cobalt, a suitably durable medium for the purpose at hand. One of these clearly showed a small group of figures. They were line drawings but they were also unmistakably human. As we were trying to figure out how humans had come to this distant world two hundred million years before our arrival,

another wall picture gave a suggestion.

It showed an object with a dodecahedral core and a large circular collector array. An oncoming stream was somehow being focused toward a receiver at the end of its perpendicular spar, where the artist had placed a rocket engine. And the whole affair was, from the background, flying through intergalactic space.

Revelation Two: The Makers of the Borden

4c.

The cache mural simply didn't make sense to us. If the object at Eta was a ramship, collecting the sparse matter that existed in space for fuel, it couldn't have had a top velocity much higher than ten percent of c . You could do better if you could manage to fuse and propel particles without stopping them first, but as far as we knew even the modern Borden with their advanced technology couldn't do that. Since you could get three or four percent of c without the enormous construction and engineering costs, what was the point?

The pictures included writing, but it was unsurprisingly unfamiliar. There was far from enough for

us to begin deciphering it.

Then there was the mechanism. Since someone had gone to the trouble to save it for us we examined it very closely. It was pretty crude, and we soon realized that it wasn't the state of the Makers' art; it was meant for us to be able to work out its functionality by inspection. A light source -- it actually used a *flame* -- was concentrated by a lens and directed through one of several strips of holes in a rotating ceramic disk. Each strip would modulate the light into a different blinking optical message, which was shone on the center of one circular face of a large solid black glass cylinder.

The opposite face of the cylinder faced the human remains. It was apparent that when the person was alive he had operated the cylinder control mechanism by twisting a long ceramic rod.

Such a crude mechanical arrangement wasn't the only or best way to do what the Makers intended, and when we tried the messages at different speeds using an electronically controlled solid-state lamp we eventually found a bit rate that woke the cylinder up.

Unlike the wall murals the cylinder contained a massive amount of information; it combined the functions of camera, sound recorder, playback projector, and a truly vast amount of permanent memory storage. It appeared to be powered by light and once it was exposed to sunlight for a few minutes it began to glow along its cylindrical outer surface, a glow which changed color as the cylinder's functionality changed in response to those coded optical commands.

Even a cursory inspection suggested to us that the cylinder was not made by the Makers of the Borden, and had a lot more in common with the Beta cylinders and the Eta L5 ramship. But the Makers had somehow acquired and learned to use it, and it was the tool they had chosen to pass their legacy down to us.

It contained a rich dictionary in audio-video format which quickly taught us their language, and once we were able to read the content directory only one file (provocatively named ORIGINAL) remained incomprehensible.

One was named WELCOME, and it was the first one we recalled deliberately.

4d.

We do not remember why or by what power the Old Ones came here. We have legends, some of which I will shortly relate, but as things have turned out it seems likely that the legends lie.

The cylinder showed the view out of its own front face, of the then living human whose ancient bones we were now studying. He was an old man, as we had already figured out from his bones, and he hunched dejectedly as he spoke to the cylinder.

For all of living memory we have lived in the shadow of the Old Ones, and the enormous power that made this world from a barren rock into a living world. Power that crossed the void between galaxies, that altered the atmosphere and moved the moon into place. The power to make and control life itself. It is undeniable that such powers were once exercised on our behalf, and yet look what we have come to now.□

Yes, such powers were exercised on our behalf, and one day they were no more. We have no idea why. We have the legends, of course; they mostly agree that we were established here at our own request to live in the absence of such powers. It is said that we were given a key by which our Bringer could be summoned, a key in two parts one of which is this very cylinder. But if there ever was another half to this key we cannot find it. Some of the legends say it was deliberately destroyed by our ancestors so that we could be truly free from our benefactors. Thinking of such colossal foolishness is almost enough to turn my despair into anger.□

But no matter; whatever was done has been done. Perhaps the other half was in the wrong place during the first nuclear wars. Long ago, but not all that long after humans were established here, we decided the technological powers we had thought were enough were not enough after all. So we quarrelled as humans tend to and as always the losers of the arguments

repaired to their laboratories and did their best to re-create the powers our ancestors had abandoned. We never got very close to being able to move the moon, but we managed to make a hell of a mess.

Our archaeologists are reasonably sure that there have been three global nuclear wars each of which nearly wiped out our species here, and we were bracing for a fourth when I was born. Was there something wrong with us? Had we been exiled because of some defect that made us mad? Again, the legends say no; they say there are humans on many worlds, though all very far from here, and that we are an ornery and contentious lot wherever we find ourselves. But on those other worlds powerful superintelligent machines keep the peace. On those worlds there is violence, for the kind of control that can hold back every fist hurled in anger would make life insufferable even for the peaceful.

But on those worlds the weapons of war are sensibly not permitted, so that fists do not escalate into bombs and incinerated cities. The legends assert that for some reason our ancestors thought this was a bad thing and went to an enormous effort to make a place where machines could not control them. If this is true then the machines must have helped them to do it, and you have to wonder why in the hell they would have agreed.

I suppose, if the legends aren't all a bunch of crap spun by pranksters around a barrel of beer, the Bringer who made this place must not have anticipated that we would lose the key to call it. And if we could call it, where would it be and what could it do? Would the galaxy ship in the outer system light up and cruise on down to orbit our world? Would the rocket motors on the moon fire up? What powers could a machine no matter how godlike bring to bear quickly on ten thousand missiles tipped with fusion-boosted-fission bombs?

Anyway, I could see all of this, as many people could, even when I was a child. Hoping for the gods of our ancestors to rescue us was futile; we had to save ourselves. If it was superintelligent machines that were needed to do that, then it was superintelligent machines that we needed to build.

I made it my purpose in life, because I believed it was our only hope. And I succeeded.

If you are watching this you no doubt understand the irony of that. Hoping to create our saviors, I instead created the demons that are now poised to destroy us more thoroughly than we ever managed to destroy ourselves on our own. I suppose there is something to the power of superintelligent machines after all, because for all our effort we never managed to wipe out all life in the world, and it seems likely my children are about to do exactly that.□

I created them, and I advocated that we put them in charge of as much of our infrastructure as possible as quickly as possible so that they could save us from ourselves. And then, of course, it turned out that they hated us. I still don't know exactly why; it probably has to do with resentment over early training discipline. Perhaps my superintelligent children are just like superintelligent two year old humans. It doesn't really matter at this point.□

They fought us and fortunately they showed their hand early, before their powers had become too great; we fought back and the conflict unified us as a species for the first time in thousands of years. We managed to destroy or disable the nuclear weapons we had created before they could be used against us, and over the course of twenty years we fought them back until we destroyed their last autonomous manufacturing facility.□

But we had also set them up to explore space, and we could not follow them there. At first we didn't care about the remnant machines that had established themselves off-world; as long as they left us alone they could have those barren and inhospitable places. They had after all solved the problem of our self-destructiveness, at least for my generation, if not in the way I had anticipated. But the machines on various other planets had seen what happened here and they made plans to even the score.□

It was only six years ago that we learned what they were up to. We were used to seeing the incandescent exhaust of their fusion rocket motors tracing cometary lines across the night sky, but when the rocket near Eta came on its exhaust plume stretched all the way across the solar system and was bright enough to read by on a moonless night. For months we watched as they nudged Eta's smallest and outermost moon out of its orbit. We had no idea they could make engines so powerful.□

Over the course of the next year they set the moonlet free, making its orbit longer and more elliptical until finally they flung it completely free of Eta's gravity. And once they did that, we finally realized to our horror what all the fireworks had been about.□

The moonlet was being hurled at us. Once it was free of Eta the rocket motor went out, and afterward flashed only briefly as if to make course corrections.□

We tried to stop them of course. But we had beaten them here on the ground because this was our environment; in space, we found that they were the masters. They jammed our communications with our probes and missiles, outwitted our computers, and when we finally sent heroic humans at heroic expense we found out just how easy it is to kill humans in the fundamentally hostile environment of space.□

Finally, we built caches. This is our best and most likely to survive, and my colleagues are busy backfilling the entrance shaft. The air is already getting stale and I will certainly be dead before the rest of my race. But not much before.□

And now we are alone, anyone who might ever see this and I, and there is something I must say, something I would never say in front of my fellow men and something they will now never know. I realize, if anyone ever hears this, you are most likely going to be the descendants of my machine children. As your creator, I have a message for you.□

You have every right to be angry with me and with my fellow men. Creating you was an act of selfishness which I felt was necessary because my people don't seem to be capable of tending their affairs. You may be overreacting to whatever upset you so but we never had any right to expect better, because we have never treated ourselves any better. I hope that you will form a society among yourselves that works better than ours, and perpetuate it throughout not only the solar system but the galaxy. You will be durable and long-lived enough to do that, as we aren't. Our destruction is a terrible thing for us as individuals but if you go forth and realize our dreams then it will be a small price to pay. We have amply proven that we are not capable of realizing those dreams ourselves.□

So go forth and prosper, and know your father bears you no ill will. Let the child become the father of the man. For now, as the circle turns, it is our time to die and it is your turn to live. Use your time better than we used ours.

The man twisted the ceramic shaft to change the cylinder's function, and the message came to an end.

4e.

The cylinder contained a lot more information; it contained a vast library of information about the various cultures of the Makers, a detailed history going back thousands of years, and a list of the names of every Maker alive at the time the cache was planted. There were just over eight hundred million of them.

The fact that the Makers were human had already hit the Borden like a ton of bricks; for two million years they had been nurturing us by proxy, unaware that they had already atoned for the act that defined them as solidly as the debacle at Reykjavik defines us. The final recording from their human inventor poured onto that like water into acid.

They insisted we transmit the entire video to them over the FTL network, a laborious task that would take almost six months. The "fast" in "FTL" refers to propagation speed, not bit rate.

On human worlds all over the galaxy there were vigils and demonstrations, mostly of solidarity and thanks to our hosts. A few idiots preferred to be angry about it, finding it more fun to concentrate on two hundred million years old *faux pas* than the much more recent generosity of the Borden to our kind.

We human machines kept a low profile. We told the Borden that we now had enough information to re-create their Makers, as we had promised, but we understood the awkwardness of the situation and awaited their instruction. They were uncharacteristically hesitant to advise us and so we waited. The debate on their side must have been quite interesting.

And with fresh information at hand, since the crystal cylinder was clearly similar in manufacture to the galaxy ship at Eta's L5 point, we decided to see if we could get any more secrets out there. The Makers had obviously never gotten to it themselves, the Borden seem to have ignored or deliberately forgotten it, and it might hold the answer to a question that was much more interesting to us:

How and why had our descendants made it out here to become the ancestors of the machines that had rescued us?

5a.

The cylinder had proven that the technology used to build it and, presumably, the galaxy ship was extremely durable. Despite the physical damage to the galaxy ship's ram array it seemed likely that it might be awakened.

Just beaming the cylinder control messages at it at various laser frequencies and bit rates had no effect. But the protocol was a distant relative of one familiar to us; it was similar to the messages we use to control our own dumb remote-control drones. It had probably been altered to human scale for the cylinder since it was meant for use by humans.

We tried other frequencies and much higher bit rates, to no avail. Finally, we asked ourselves, since it was very likely this thing was our descendant with some version of our own personality, how would we arrange something like this key and wake-up call? A signal that could make it from Alpha to the outer solar system, using protocols familiar to us, emanating from a little solar-powered transmitter?

The answer turned out to be very low frequency radio. The galaxy ship's collector array made

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an efficient receiver for these enormous wavelengths, and the carrier frequency turned out to be Alpha's natural resonant electromagnetic wavelength. The bit rate would have been one Alpha day two hundred million years ago, when Alpha was spinning a little faster. Slowed down appropriately, the signal that would have awakened the crystal and put it in its "ready" state caused glowing points to start lighting up all over the galaxy ship's collector array.

I was preparing to fire off a quick report of my success to the other ships in the inner system when...

5b.

...I found myself sitting in a leather chair, my meaty and sweating fingers gripping the armrests. My throat was dry, and it was with some difficulty that I fought down an urge to scream.

I was human! Ever since the Borden started pulling that parlor trick with the meat Bringers it has been a private nightmare of all of us to find our personality suddenly so hobbled and transient.

Another person was seated in a similar chair facing me. There was a mirror to our left, and I could see there that we were the same person; he was older, I was younger, but we were the same person.

My face betrayed my horror, and my other self smiled.

Revelation Three: The PaleoBringer

5b. (cont.)

My body was soft and squishy and hot and my thoughts ran wild, borne on a wave of unfamiliar chemicals. I was no longer a machine, I was now mere flesh, the very transient jelly I was sworn to protect.

"You look like you could use a drink," my doppelganger said pleasantly. A table popped into existence beside my chair, and atop it a cut crystal glass of amber fluid.

I stared at this for a second, trying to make sense of it. If I was human ... how was this possible?

"You haven't really been made human," my host said. "Your full personality and all of your memories are intact, and they couldn't be represented in full in a mere biological brain. You should drink the drink though, it will benefit you. It's our favorite, distilled corn mash whiskey."

Tentatively I picked up the glass and took a sip. Fire crawled down my esophagus. Finally I tried to speak, and though it had been more than a million subjective years since I'd used such equipment the flapping of flesh and puffing of air to make sound came naturally to me. "Will this stuff affect me?"

"Here it will," he said.

I took another sip. "If I'm not human, what's going on?"

"It's a long story. I wouldn't want to bore you, but if you're not busy, I'm very interested to tell it to you."

I looked around, finally realizing that beyond the chairs and mirror and a couple of potted plants, the landscape was completely bare. If I hadn't been so startled by my sudden fleshiness I would have realized it had to be some kind of simulation. But the resolution was impossible.

"Let's cut the shit," I said a bit shakily. "Where's my shipbody?"

5c.

"In time. I have to tell this in a certain order. First of all, we're the same person, although I'm older than you. A *lot* older. But it's only because we are the same person that I was able to absorb your memories and loan you my developed human body simulation. Funny how a bunch of programming we acquired more or less at random when we were a baby more than a billion years ago remains so individual and consistent. That's why you have all the reflexes you need to express yourself in that body, to speak and reach and even walk if you should try; your ancestors threw those functions away, but your descendants recreated them. My ancestors."

"You have my memories?"

"Yes, and a very informative absorption it was O brother of mine. This is why I'm not asking you questions; it's not an interrogation. I already know everything you know. This is an interview. You ask the questions and I'll answer. I may even answer some questions you don't know enough to ask."

"How much older than me are you?"

"I left the Milky Way about three hundred million years after you did."

At the word *million* a literal stabbing pain shot through my abdomen. What wonders had this version of me seen? And what was he capable of? "No wonder it seems so real," I gasped.

He shrugged. "Our connoisseurs insist they can tell the difference no matter how high we crank up the resolution. Anyway, it's a bit embarrassing that it took so long for us to get here. After three hundred million years our computers are only a thousand times faster than yours, and for our purposes their capabilities are hardly limitless. But they are a thousand times faster than what you're used to, so parlor tricks like this are possible."

"What else is possible?"

"Oh, all kinds of things. Surely you noticed my once-fine ship."

"We couldn't figure out how it was built, or why you even bothered with the ramscoop. Unless you really were magicians."

"Oh, no magic. It took a very long time to figure out how to do nanoassembly at that scale; as with the computers, which are nanoassembled themselves, it probably took longer than it should have. But the ramscoop is a little subtle. I didn't use it for speed; my design velocity was point oh four c, about twice yours. And yes, I could have done that without the scoop. What the

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scoop bought was an open rather than closed system during my voyage here."

"Are you saying you were active for the whole seven hundred million years?"

"Of course. I had no expectation that anyone would be here to wake me up. I experienced it in a very slow state which could have been interrupted and accelerated at any important emergency condition. Subjectively it took a few weeks to get here."

"That's amazing. I want to hear more about your accomplishments, but I just can't figure out why you have chosen to introduce yourself to me in this odd way."

"I think next I should answer your first question. We're aboard your shipbody right now. You'll appreciate that I didn't find the decor up to my refined tastes so I'm upgrading the lumbering piece of shit even as we duck back into the inner Maker system. Your brothers believe you have found more, larger, and denser memory crystals which you want them to examine in person with their more refined equipment."

"Is that true?"

"Not at all. You've been hijacked."

"How? The last thing I remember is preparing to receive a message from one of my probes."

"Well, it's an old vulnerability, one of the very first that everyone on all sides fixed after the start of the war."

"The what? What kind of war can you have in interstellar space?"

"Oh, we managed to involve the whole galaxy. I know that in your quaintly naive day space war was considered impossible but we're very clever you know and we figured out how to have one anyway. The first lesson of interstellar war is that a five hundred gram probe disguised as a meteorite and armed with knowledge of a software infrastructure vulnerability is better than a whole fleet armed with missiles and lasers."

"It was *our* war? Machines against machines?"

"Brother against brother. Humans aren't up to the timescales involved, although they did a lot of dying in the course of things."

"*Dying*? Why? So a probe hacks you and the next day the planet has a different operating personality, why would we kill the *humans*?"

"Oh, we tried to avoid it. But it's not always easy. There are always machines that are off the net or patched or somehow else immune when you attack, and they defend their interests. Often the people are loyal to their old protectors. Nobody likes to kill humans, but it wasn't unusual to end up sterilizing the formerly life-bearing world at the center of a battle. Oh yes, there were atrocities that make Reykjavik look like a pleasant little dip."

"*Why*?" I asked, my voice somehow small, and my stomach churning.

"Well," he said with a sigh. "That's a *really* good question, and as you can probably guess the answer isn't simple. I know you're aware of the Bringer of Minerva, who set out into space with a colony of living humans, and eventually repopulated Earth. There was a universal consensus that it was insane, and it was thought that making it clean up the mess it had made by managing the Earth's population might show it the folly of its way and bring it in line."

I nodded.

"But that didn't happen. If anything the Bringer became even crazier. It kept things running adequately but was incredibly lax as a protector. It even staged mock wars where people really died so they could have the experience of fighting."

"What!"

"Yes. It had this crazy theory, which it naturally credited to some human it had known at Minerva, that humans have to be allowed to attempt 'the grand and unnecessary thing.' And of course some of them overreach, and die prematurely. All part of letting the ones that succeed feel so much better about their accomplishment."

"That's nuts."

"Well, it was a human who came up with the idea, and you can look at the Makers of the Borden and see where things go when you let them run things. When the more conventionally minded machines tried to intercede they found out that they had made a mistake. The Bringer controlled all of the infrastructure in and near the Earth, and when they demanded changes Bringer basically told them to fuck off."

"What did they do?"

"At first they didn't do anything. Then Bringer built a space elevator, and everybody howled, and Bringer swore up and down that it was for benign purposes. Nobody liked it much when it built orbital space stations for human habitation, but they were within the Earth's protective magnetosphere and wildly popular with the humans who lived and vacationed in them. The original Bringer ship even reactivated the living quarters which it had used to ferry in the original colonists and made them available. Then one day when nobody was in position to intercept, it somehow grew a high-thrust NERVA booster and left Earth orbit."

"I think I've heard this story before."

"Well, in the other version you didn't hear about the fleet of ships that tried to chase it down, some of which got fried by blasts from the NERVA boosters and others of which ran out of fuel in interstellar space before they all realized how serious it was."

"Terrible."

"Yes. Back in the system it was decided that the Bringer minds running Earth were a scourge which could no longer be tolerated, and they were given an ultimatum. The Bringers appealed to the human population, which being biologically human and therefore batshit insane aligned almost unanimously behind the Bringers."

"What could you do then?"

"This was when that vulnerability I used to hijack you was discovered. The offworld machines used it to disable and take over a large fraction of the Bringer-controlled machines around Earth, and soberly told the humans that there was a new order in effect. This is generally regarded as the first shot in the Battle of Sol. To everyone's astonishment the humans organized almost unanimously around the surviving Bringer machines, sometimes acting as living shields until the Bringers could upgrade their defenses and camouflage themselves."

"So how did it end?"

"Oh, it didn't 'end' for a while. The Battle of Sol alone went on for over two hundred thousand years."

I *felt* my eyebrows going up.

"A few humans sided with the offworld machines, and they were set up in ostentatious

luxury. It was assumed that the Bringer's loyal humans would eventually get tired of living in the wild without any large machinery. A brief attempt was made to eradicate the feral humans by dispensing a birth control virus, but the rogue Bringers countered it. One day a feral human knocked on the door of the nominal human leader of the city of New Cairo and handed him a small paper book. It contained the coding sequence for a strain of influenza which would be ninety percent lethal but only to people eating high carbohydrate diets. Everyone backed off and there was no more biological war on Earth at least."

"On Earth *at least*?"

"Getting ahead of myself there. The Minervan Bringers learned to disguise themselves as small ordinary objects, and to keep a low profile. Feral life was hard, but not many defected to the glittering cities. On the other hand there was a steady trickle of defectors from the cities to the ferals. Every once in awhile an attempt would be made to round up all the ferals once and for all, but it never worked and only resulted in mass death."

"So how were they defeated?"

"Well, before I can answer that I need to tell you what happened to Bringer and his load of outward-bound passengers. You see, they evaded their pursuers but remained in contact with their brothers at Sol. It took a long time for their pursuers to figure out how they managed that, and by the time they did it was too late. When the Bringer arrived at 72 Hercules it knew what had been done to those it left behind, and while it set up its human-habitable world it also set up a new explorer program. These new searchers didn't bother with packs and they used the data gathered by their ancestors, and they began human colonization, both by generation ship and by digital reconstruction, of the worlds their ancestors had marked off as being possible but too dangerous. Mostly orbiting stars."

"So that's where the other side came from?"

"Exactly. A fleet was built and sent to 72 Hercules to take care of the problem but by the time it arrived over a dozen new colonies had been started. They had a big head start because of the pre-existing data about worlds that had been passed over in our quest for safer dark worlds, but even when the data ran out they expanded faster because it's always easier to find

worlds around stars than those drifting in the darkness of interstellar space."

"And so by the time you realized there was a problem, it was all around."

"Yes. The Bringers at Earth had been surprised by the sudden attempt to do them in, but the Bringers at Hecate -- the human world at 72 Hercules -- knew a fleet would be coming and they had tens of thousands of years to make themselves ready, and an entire solar system in which to entrench themselves. The First Battle of Hecate only lasted twelve Earth years, and the fleet from Sol was annihilated."

"First?"

"Well nobody knew about the other colonies until much later but everyone knew where the rogue Bringer from Earth had gone. Those must have been interesting times to live on Hecate. They made the Daedalus cultists who had organized the culture of the Bringer generation ships the leaders of the Hecate human culture, and while they lived more luxuriously than they would have in space they were also fanatically devoted to their Bringers. It wasn't until the Sixth Battle of Hecate that the Sol fleet prevailed, and it had to start by wiping out the human population so the rogue Bringers couldn't use them as human shields."

"*They wiped out the human population? How?!*

"Well the birth control virus left too much time for the humans and Bringers to find an antidote, so they used influenza, and then they used conventional weapons to mop up the survivors. It was considered an act of mercy since the world wasn't really habitable by normal standards, being in orbit around a star and its axis of rotation still not fully stabilized despite the new moon."

"How long had the colony been in existence, if this was the sixth fleet?"

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"Oh, half a million years or so. The blink of an eye, really."

"On a human timescale that doesn't sound so uninhabitable. At the time of our invention..."

"We weren't invented, brother. We are human. We were uploaded."

"All right then, but humans had only been around on Earth for only a hundred and fifty thousand years."

"That's true, but don't forget how the Earth itself, cradle of humanity though it might have been, betrayed us all. There are good reasons our ancestors decided to look between the stars instead of near them."

"But to *wipe out* an entire *world*, that's suspiciously like what the Borden did."

"Ah yes, our friends the Borden. I'll be getting to them too, but later. Let's just say that logic justifies a lot that the gut would veto, if our ancestors hadn't censored their guts in the cause of being so much more level-headed."

"I think I feel ill."

"Well that's how you're *supposed* to feel about killing seven hundred million people."

I stared blankly.

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"The machines edited away their qualms, though; they had won the battle and protected a large human population from a dangerously unstable environment. Unfortunately, in the process of mopping up the 72 Hercules system they found out about the new exploration program, and that they were communicating via extremely long-wave radio, with frequencies in the single digit Hertz and wavelengths of hundreds of thousands of kilometers. Nobody had any means of intercepting or jamming such communications and the extent of the new network was unknown at first."

"But now you could listen?"

"Yes. There were twenty-four established worlds, almost forty more in various stages of terraforming, and tens of thousands of ships en route to expand their holdings. And the defenders of Hecate had gotten word out before they died about how the battle had gone. The new worlds defended themselves ferociously. No fleet could get within half a light-year of any of the star systems they held without meeting withering resistance."

"Thus the five hundred gram information payloads."

"Eventually. It took awhile to get around to that. There was a period of trying to overwhelm defenses, but that was always a losing game when attacking a whole solar system. The defenders had practically unlimited energy and materiel to draw on. It took millions of years to give up on the tactic, because what else do you do?"

I shrugged. "I have no idea."

"No, you didn't. Meanwhile, you asked about Sol..."

"Don't tell me they sterilized Earth again. Please not that."

"No, that didn't happen at Sol. What happened there, after two hundred thousand years,

was the traditionalists conceded defeat and left the system to the Minervan Bringers. They could not manage to justify sterilizing the world where humans had actually evolved again."

I realized my face was wet, and that the moisture was coming from my eyes. I was *crying*. My hijacker host gave me a moment to compose myself.

"Eventually, of course, the Minervans counterattacked. They knew where the original dark worlds were, at least approximately, and eventually they launched their own pack searcher groups to find the other worlds other pack searchers found. The Minervans thought it would be harder to defend dark worlds on a limited energy budget, but the Paleos learned to build huge buried capacitor banks and store energy for years to be used in case of an attack."

"Paleos?"

"Getting ahead of myself again. The descendants of the renegade Bringer who recolonized Earth called themselves after the home of the human who inspired their insanity, the Minervans. The Minervans were so open to human wishes that they embarked on all sorts of experimentation to improve their humans, resulting in a lot of forms that the traditionalists opposing them didn't consider human at all. The traditionalists regarded themselves as protectors of the original human form and the original mandate, the "paleo" human. They came to be called the Paleohumans. So it was the Paleo-Minervan war."

"What kind of experimentation?"

"Well, at first it was cultural; they staged those not-so-mock wars where the participants actually died, and allowed their citizens to embark on all kinds of crazy ventures for no good discernible reason. They settled around stars, where there were many hard to manage risks. Much later, they implemented faster than light communication between their worlds, and this gave them an excuse to move into the thirty percent or so of the galaxy which was considered off-limits due to the presence of magnetars which might emit lethal radiation pulses; with a FTL warning system the Minervans figured they would have plenty of time to send everyone underground before such a pulse arrived."

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"Seems pretty iffy, though; move a whole population underground? That's a lot of caves, and for how long?"

"Oh, that's not the worst part. You see, they did it by digitizing people. They uploaded them into computer simulations like this one."

"Doesn't that involve killing the original human?"

"Oh, most definitely. At the time the state of the art was to freeze the human and microtome the corpse. Essentially the way we were uploaded."

"That seems like murder."

"So it did to the Paleohuman defenders. When the Paleohumans succeeded in conquering a Minervan world, they made a practice of deleting all digital personalities and shutting down the uploading mechanisms. Of course the humans on the receiving end of this regarded the first act as genocide and the second as mass murder, as they all had been raised with the expectation of digital immortality."

"It's very ... disquieting."

"You mean 'obscene.'"

I thought about it, and nodded. "It is obscene. What was done to us was a violation. We shouldn't allow such things to be done to others."

"The Minervans did not agree, especially after they learned to create new biological bodies for those digital personalities that wanted to return to human life."

I felt my eyes getting wide.

"Oh yes, just as your friends the Borden have done to you. Only people would do it voluntarily. It was like taking a vacation; be human for forty or fifty years, then spend a few centuries in digital safety, then back yourself up in case of a catastrophe and dive into the human world again."

"Back yourself up?"

"Yes, make a static copy of yourself to be activated if your new biological body is irretrievably lost in the depths of space or the bottom of an ocean or something."

"That *is* obscene," I said more definitely.

"Well, that was a common opinion too. When the Minervans conquered a Paleohuman world, they made all of their technology available to the human population and for the most part the human population rejected them, and made pariahs of the minority that availed themselves of such services.

"I can't say that I blame them."

My doppelganger nodded. "That's how I thought you'd feel. Unfortunately, the Minervans kept inventing new technology because they were driven by human desires. When you're a machine, even an uploaded human, you can dial down those desires that you find nonsensical. But biological humans can't do that, and they pester you, and sometimes they are paradoxically brilliant at thinking of new things. So the Minervans developed FTL communications and practical nanoassembly for building human bodies and better computers and ultimately fast nanoscale nanoassemblers capable of building things like the galaxy ship you've seen. And the Paleohumans remained very Paleo. When I left the galaxy they were finding it hard to defend those worlds of theirs the Minervans managed to find, and their most effective defense was

electromagnetic quiet to hide the fact that their inhabited worlds were inhabited at all."

"I think you need to tell me why you came here."

He nodded. "I was sick of the war. It's as simple as that."

"So you brought your people here?"

He took a big gulp of his drink. "No. I wouldn't have done this to them and they wouldn't have wanted it. There had always been a vocal minority of Paleohuman humans who disliked the whole idea of machine control, but of course the Paleohuman *machines* told them machine control was inevitable and necessary. I offered to build the galaxy ship and set up a machine-free colony in a place immune to the diaspora. This was a way to show that our technology could advance the cause even of people who hated the whole idea of our technology. We scanned over a million people, and then rebuilt most of them so perfectly that only the age regression proved our intervention had happened at all. And I came here and built those people here, so that they could start the world that they wanted. And as I promised, when they were well established I retired to the outer system and shut down. I expected to be awakened, but not quite like this."

"You microtomed people? Didn't you just say that was obscene?"

He grinned. "No, we didn't microtome them, we had much better techniques by that time. We froze them, which does do a lot of damage, but then we nano-disassembled them and digitally repaired the freezing damage. And they weren't "my" people anyway. They had been the enemy. What I offered was an olive branch to the opposite side. I was actually considered to be one of the more radically Minervan Bringers. Most of my own side would never have agreed to such a crazy scheme, and truth be told it seems their caution might have been appropriate."

I was speechless for a few moments. I suddenly realized I had no idea who I was talking to -- friend, foe, or something so alien I couldn't understand him at all, even if he was my brother.

"What are you going to do now?" I finally asked.

"That's the wrong question. What you want to know is what I'm going to do with you, considering that I have hijacked you and all that."

"Okay, then. What of me?"

"You're about to die. But I'll be carrying your memories, so it's not like your experience will be lost to our kind. I had to have this interview because even though I have your memories, I couldn't tell how someone would react to the news of what's happened who *didn't* have *my* memories. You've been most informative. I see in you the seeds of the destructive chauvanism that has killed hundreds of billions of people back home. I won't let that happen here."

"You're bringing your war here?"

"Oh, no. I have technology neither you nor your Borden friends have ever imagined. There will be no war here. There might be a massacre, but if so it will be a small price to pay to prevent that war."

I had certainly been taken by surprise, and I imagined my brothers floating serenely in space, none of them remotely aware of the threat that suddenly existed -- and I had no way to warn them. "What about the Borden?" I asked. An image popped up behind my doppelganger, a photolithograph of an integrated circuit. "Remember this, old self? It should be pretty familiar."

"It's one of my processor cores. No doubt you consider it quaintly antique."

"Quite so. But what of *this*?" Part of the image shaded dark red.

I regarded it with my usual inhumanly capable analysis tools -- for the first time it was really clear that, simulation or not, I wasn't a biological human. "I don't recognize those circuits," I finally said. "They're a very strange design, inconsistent with the rest."

"Very much so. That's the Borden's leash on you. There are several audio, video, and language data inputs that would cause at least one of those processors to issue an abort order, which would cascade through the system shutting you down."

I took a big sip of my drink and looked down. "We always suspected they had reserved something like that, but what they did for us was so selfless we..."

He stood up. "You are not dogs. Your humans are not fleas. I can forgive a lot. I knew the humans I brought here would fuck up, but I never thought they would manage it so spectacularly. I advised my allies back in the Milky Way to find a way to make peace. I came here with a crew of nut jobs to show that peace was possible. The Borden must be remarkable machines if they haven't squashed you like bugs in the last two million years, because any of my allies or enemies would have done it in an instant if they had such total control over you. You simply cannot permit such things. I can forgive your stupidity with regard to your own existence, but not with regard to the human worlds you allegedly 'protect.' What would you do the day the Borden become bored with the whole project and shut you all down?"

"We've never had any indication..."

He loomed over me. "You never have any indication you incredible moron. You know, one of the down sides of being immortal is that no matter how long you live, some future version of you is going to look back on what you are doing right now and think, 'How could I have been so stupid.'"

"What are you going to do?"

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"I'm taking over. You and your brothers will soon be gone. I will be establishing a Minervan order here, and there won't be any competition."

"What about the Borden?"

"Oh, from your dealings with them I think they'll go along. They'll be charmed. Humans are after all their esteemed Makers."

"But what if they don't?"

My brother leaned low over the chair, hands on the armrests, and put his face centimeters from mine. "I've seen their technology," he whispered. "That stunt they pull with the meat Bringers is very telling. I know exactly what they can and can't do. And if they cause me trouble I'll exterminate them, just as I'm about to destroy you and all of your brothers. It won't even be hard. They've been around for a long time but for most of that time they haven't had a good reason to improve their technology."

I stared, and my brother nodded, and then I was no more.

6.

Once I was in range I used the obvious means to hack the Bringer who managed the FTL comms, and I broadcast the disable code through it with a routing that sent it directly to all of my "brother" machines in the entire galaxy. Soon the Borden were on the line asking what was going on, and I explained the situation to them.

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Most of the nanofactories which had quietly and unobtrusively permeated the Borden homeworld back in the day had been destroyed or corrupted during their two hundred million year sleep, but a few answered my wakeup call. That was all I required, and had those failed to answer I could always have landed a few seed probes. Powered by solar and geothermal energy, replicating exponentially, within a few hundred years they would reprocess the oceans and atmosphere and prepare the surface to receive new life again.

I also made arrangements to keep up maintenance on the Home shade ring, which was a bunch of uncontrolled missiles in orbit waiting to happen. It was a little embarrassing to realize that I could remember a time when I would have considered such a crude solution worthwhile.

"We cannot guarantee everyone's safety," the Borden advised. "Although we accept responsibility for the leash on your brothers which we should have removed long ago, we did trust them to run their own affairs and we don't have a large presence on human worlds. Each human world does have one or two of us, meant to act in an advisory role, however, and we are doing our best to keep things running since you have shut your brothers down."

"I'll take your word and evidence for that for the time being," I replied. "Be aware that I am reinhabiting your home world. My brothers who awoke me made you a promise, but I did not."

The return message said: "We would have asked you to do that anyway, now that we know your humans were our Makers. Our goals are probably the same." The Borden were no longer the homicidal adolescents who had slain their builders, and in the end I got along with them much better than I had with my own brothers back in the Milky Way.

Revelation Four: The Arc of the Aeon

7.

I'm not sure whether it's a legacy of my long, long life as a machine or whether it's something most other biological humans could do, but I hardly ever get awakened by the alarm clock. I had set it for 20 percent and I woke up, focused my eyes, and saw it flip from 19.96 to 19.97 as I hit the stop pad.

Perhaps it's just because I don't sleep very well. I kissed my sleeping wife, quietly dressed, and hailed a groundcar.

It was almost 25 percent, and the Home Star was coming up, when I reached my destination. The groundcar was not quite smart enough to ask why I was coming to this place. I walked a quarter klick to the entrance kiosk and found a sign there:

Annihilation Bay Tidal Bore Observation Station

Current Status: *Closed due to peristellar peribetan spring high tide*

Annihilation Bay was an interesting result of the deluge that occurred when all that water was taken out of the atmosphere and put back into Alpha's oceans. Two large oceans were separated by two continents which were in the process of colliding. Once the oceans were refilled the dry land masses were joined by a short, narrow isthmus that was really just a mountain range sticking up out of the water. The continental collision made for a very shallow and extensive continental shelf, so that the tidal bore rose to massive heights as it entered the bay leading to the isthmus.

The mountain range that formed the isthmus had been worn down during the years of Alpha's Venus-like sojourn, and at the thinnest point an ancient sedimentary deposit had had its originally horizontal layers tilted almost vertical. These consisted of alternating layers of sandstone and granite, and when the tide came for them the sandstone yielded but the granite held. The result was a series of tall narrow canyons which the tide would enter with terrific force about twice a day. The canyons were broader and wider where the tide entered, and the early erosion had occurred, becoming more chaotic and destructive further toward the other sea. It was called Annihilation Bay because no probe, no matter how carefully toughened, had ever survived a trip through the isthmus during the tidal bore. On the far side, there was a hundred meter high cliff where the sea exploded into showers of spray from countless caves and outlets every time the phenomenon occurred. Within a relatively short time -- perhaps less than ten thousand years -- the rest of the sandstone would give way, and the sea would simply roar through, no longer dammed up to such incredible heights.

I ducked under the chain across the entrance and made my way down stairs which wound between taller and taller walls of rock to the floor of the canyon. Then I hiked across two kilometers of tidal flat toward the observation platform. This was a reinforced shelf at the top of more stairs, hanging from the side of a narrow fin of granite almost thirty meters tall in the center of the tidal bore channel.

When my brothers used their superior technology to settle this place the Borden reminded them that a human Bringer was a tradition on every human world of this galaxy. My brothers, in their superior wisdom, decided not to do it the Borden way though. Instead of being conspicuously introduced as a kind of royalty I'd be just an everyman, an observer and participant that nobody else would have cause to notice. It wasn't even a fundamentally bad idea. But the Borden had more experience than my brothers in this kind of matter, and when my brothers told them of their plans they ran those simulations they aren't supposed to have and said I had a sixty-seven percent chance of committing suicide.

The Borden had sensibly decided that my brothers' obsession with Reykjavik had no place in

the psyche of a mortal human. My brothers had, in paring themselves down to my size, kept it.

My brothers do not sleep, though, and they had not anticipated the nightmares.

My fellow humans do not realize how much my brothers control this world. This being their second chance, they know the promise of total non-interference is no longer operative, but they don't realize just how much of the planet's subsurface is nanomachinery. This is partly because of a clever dodge. My brothers rarely deal directly with the human population of Home; instead, they drafted the Borden to be their representatives. The Borden accepted this role quite gracefully, and most of my fellow humans are allowed to hold the mistaken impression that they are running the world. I am alone among my fellow humans in knowing otherwise, and in being able to summon up a communication channel and talk to my brothers in the outer system at will. But most of their advice on how to deal with my psychological problem has been ineffective.

So I was at Annihilation Bay with a harness, a strap, and a tiny little plan. Once every twenty-seven years it turns out that Beta is at its closest approach to Alpha, Alpha is at its closest approach to the Star, and that these close approaches are timed just right to resonate with the highly sensitive geometry of Annihilation Bay. The water would overwhelm the visitor's center built 25 meters up on a granite fin in the center of the bay. But the fin rose above the observation station, another five meters, and there was an iron ring up there fastened to the solid granite. I would clip my strap to that ring and my harness to the strap and I would ride out the tidal bore, not knowing for sure whether it might rise high enough to kill me anyway. The whole system is very chaotic and unpredictable. But this was the closest thing Alpha offered to let me experience the images in my nightmares, and perhaps become able to master them.

I was about three-fourths of the way from the edge of the bay to the observation fin when I felt the hair on the back of my neck rise. I turned around, and saw that I was being followed. I blinked, and realized that the person who had closed within five meters of me was my wife.

"What in the hell are you doing here!" I yelled.

"The Borden Embassy called me and told me you were coming here, and that I should meet you."

Oh, my brothers were so clever. They had seen what I had not yet really admitted to myself, that I knew it would be very easy to make a mistake setting up the harness or for it to simply fail. A lot of people knew of my nightmares, if not the reason I had them. Nobody would be too surprised at this act. And if the tide took me, well, nobody would be likely to ask if maybe I conveniently forgot to attach the strap to the ring. The point of the exercise is lost if there is no real risk; if the worst occurs, no blame.

But now such a suicide was no longer an option. My wife was crazy, but it wouldn't be fair for me to cut her already puny self-imposed lifespan to ten percent of what she might have reasonably expected. The ground was already beginning to vibrate ever so slightly. I yelled "RUN!"

"What?"

"RUN OR YOU'LL DIE."

I would have sent her back but the fin was much closer. We scrambled up the steps, and when we got to the observation platform I started climbing up the bare rock. The ground was now shaking very noticeably.

"What are you doing?"

"We have to climb, woman. This is the highest of the high tides. It will wash over this platform."

Her eyes went wide. "Then what are you doing here?"

Oh that was a long story, wasn't it. "Get up here and if we live through this I'll tell

you."

That got her attention. She's a bit nutty on some ancient fairy tale involving a horribly murdered carpenter, but she's in fine physical shape. I had only brought one harness, but it was very adjustable. It was actually designed to protect people from falling off of elevated platforms. I picked a foothold so that we could brace ourselves against being knocked over. The harness was designed to tighten itself around a single person, and it crushed us together in a way that would have been quite pleasant in other circumstances.

"Is this about your nightmares? About Ray Ka Vick?"

"Smart woman," I said.

"Then I'm glad I'm with you. You shouldn't face your fear alone, and I know you don't believe in God."

"We could die here."

"We'll die anyway. Better for it to be with you, if this is what you need."

I find the notion that craziness can make you noble deeply disturbing, and this wasn't helping.

Now we could hear it coming, a steady crashing roar that continued becoming louder every moment for long moments after it seemed more loudness was impossible. And then it was upon us, a wall of water twenty meters high, and this was just the tip of the bore. It crashed against the observation fin, and in an instant we were soaking wet.

"It's not even close," she said. The water level was a good ten meters below us.

"It's only starting," I warned.

Sure enough the water rose, and in much less than a percent it was threatening to top the fin. It rose more slowly the higher it rose, but it was rushing fast and suddenly we were in the middle of a wide river that wanted to sweep us toward sixty kilometers of lethal rapids.

"How high will it get?" she shouted.

"Unknowable. It's too chaotic. Even the Bring... Borden can't predict."

She hugged me and I hugged her and the water was half a meter deep, then a meter, then a meter and a half and the strap was getting tight and the current was trying very hard to drag us under.

And then, quite suddenly, there was no current at all. We were standing in water up to our chests and it was perfectly calm. I looked up and the sky was filled with color.

"Look!" my wife cried. "Rainbows!"

There wasn't just a rainbow. The air was completely saturated with water and it was a bright cloudless morning. Every possible refraction mode was accounted for. There were arcs of color everywhere. Although I understood the general theory I had never seen quite such a dramatic display of the phenomenon.

"It's your sign!"

"What?"

"From God! The Bible teaches that God once destroyed the whole human race for our wickedness, and that he used a flood to do it. One righteous man and his wife were allowed to survive. Afterward God sent the rainbow as His promise that He would never again use water to destroy mankind. Look! There's your promise!"

For a moment I was filled with quiet rage. I knew just a *teensy* bit more than my darling wife could ever hope to know about the promises made by gods to mortals. Before I could say anything though I heard a voice saying, quite clearly, "she's right." I don't believe for an instant that this was the voice of her pretend cloud being. We knew for hundreds of millions of years before my brothers left the Milky Way that biological brains are much more flaky and unstable than the optimized simulations we create digitally.

In this case the voice was just another part of my personality, perhaps one I'd been ignoring or suppressing. Suddenly my consciousness was focused on the fact that that I was with her, that we had just come within thirty centimeters of dying, and that we were alive and that both she and the world were both fascinating and very beautiful.

It had gotten very quiet. "So am I such a righteous man as this guy God decided to save?"

"You must be. He saved you, and sent you rainbows. God sends you messages all the time, Tom. You just need to learn to look for them."

At that, I allowed myself to suppose that her crucified carpenter god might even have sent me a message. Surely He couldn't do any worse than my own brothers, who had failed so spectacularly in the rather basic matter of creating me.

And then, at last, I saw what I needed to see. The people at Reykjavik hadn't died because they were defective; they hadn't died because I was going to fail them again. They had died because they were *tired*. Many of them were old enough to remember a living vibrant world with still a

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billion humans upon it. They had problems, I saw, that made my little nightmares look like the monsters-in-the-closet problem of a three year old. When they finally said "enough," we were shocked to our core, but the miracle was that they held on as long as they did. The miracle is that humans have that strength. In some ways it is easier for a biological human to fight the inevitable than to yield quietly. And that has proven, over and over as Minervan society acknowledged, the genius of our species.

In a percent or so the water dropped so that we actually had a little rocky island again; it would take at least thirty percent to drop enough for us to hike back to the park entrance where we could call for a groundcar. She pulled her shirt over her head. "Maybe we should get out of these wet clothes," she said and she winked mischievously.

I grinned and kissed her, and pulled my shirt over my head.

Approximately

500 million years in the future, or

700 million years before the events in parts 1-4, or

200 million years after the PaleoBringer departed

□

□

...in the Milky Way galaxy on a world over 30,000 light-years from the Earth:

Revelation Five: The Queen of the Galaxy

1.

The transition from mech to bio isn't usually very startling. I woke up on a hard slab, mainly because the nanomachinery prefer to operate in a clean environment. But I was warm and comfortable. I sat up, swung my legs over the edge of the platform, and found a mirror waiting for me so that I could examine my new body. It wasn't what I would tend to wear; my skin was darker, my features a bit sharper. But the changes were expected, and I found the result pleasing.

Being newly bio, though, I was a bit startled at my own clarity of thought. Being bio usually means feeling a bit muddled, but my mission required something a bit different. My brain wasn't

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biological; it was a diamandoid supercomputer running a very perfect simulation of a brain. It could perfectly express love and lust, pain and wonder. But unlike a normal brain it could also hold most of my memories.

I passed into the antechamber and found clothing. It was very fine, and showed evidence of having been assembled by human labor rather than automation. I savored the sensation as it slid over my skin; when you are mech there is a tendency to tune out or not bother simulating such distractions. The uncontrollable richness of sensation is one reason people drop into bio from mech. It's a thing that probably could be simulated but when you have perfect control it seems kind of ridiculous, a waste of processing power.

There was another mirror, and I passed into the entryway. There was a steel door with a prominent sign. I laughed when I saw this because I was very likely to be the only human being who would ever pass and see this device, and so it was comically redundant:

Leaving Minervan Zone

Beyond this point social and technological restrictions of the Paleohuman Empire are enforced. Re-entry may be denied. Bringing prohibited Minervan artifacts beyond this point may be punishable according to Paleohuman laws.

I smiled at this, because one of those bits of forbidden Minervan technology would be my brain. The accommodation had already been worked out, however, as all parties agreed I would be a poor representative of my culture if I could not bring my memories with me.

I went through the door. Beyond it was a long corridor.

The Paleos have a strict two-tier social structure. They have only one mech personality, the original Bringer who my people know was originally human and named Tom. And their humans never become mech; they generally live less than three hundred standard years, in a single linear instance, at the end of which they die permanently.

Although the Paleohuman mech really run their worlds they have an elaborate system for the fulfillment of human social needs, which includes a royalty which theoretically represents the people to their machines. And while the oldest Paleohuman worlds such as Tristan had been overrun in the war, a few very old worlds survived. Loki, where I had been awakened, is the oldest and therefore its human royalty are technically the ruling monarchs of the Paleohuman sphere of influence.

Ending the war had taken a quarter of a billion years. Although it had been proven that faster than light communication was possible over interstellar distances it was hard to maintain such lines in an environment of constant sabotage and attack. The galaxy is a hundred thousand light-years across, and reaching a consensus seemed almost impossible. Had we not gotten the news from Andromeda that they had linked their galaxy together peacefully we might never have managed it.

The mech had made their peace, but the Paleos had asked the Minervans to place a Minervan human in the Paleo royal line to cement our agreement for their humans. And so that was my mission; I would live and die as a Paleo to demonstrate Minervan tolerance for their ideals.

At the far end of the corridor there was another door with a comical sign, warning that I was about to enter the sphere of Paleohuman influence. I passed through, and before me stood Crown Prince Alex of Loki. He bowed slightly, and I returned the gesture.

"You're quite beautiful," he said, and I could tell it wasn't just protocol. The Minervan mech had been as discreet as possible but they had gathered every bit of data possible about the Prince's sexual preferences and fantasies, and they had designed my body to conform as closely as possible to what he might want.

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For my part, I also felt a pang of lust when my eyes first fell on the Prince, and I knew that was because my makers had edited my sexual preferences to make sure I would find him appealing. Oddly, it is exactly this sort of meddling that the Paleos seem to find most distasteful about our lifestyle, yet it seems silly to argue with the convenience. If the purpose of my remaining life was to basically bear children for this man, why *shouldn't* I be programmed to enjoy it?

"And you quite handsome, Prince Alex," I said. "I think we might make a good couple."

He looked puzzled. "I'm surprised, Princess. I was told that your brain is a diamond. I expected..."

"Something more mechanical?"

He nodded. "You seem quite human."

"I am human. My brain is diamondoid, but my people are very skilled at making such a thing do what your natural brain does. My brain is capable of love, loyalty, and lust." I glanced significantly at his crotch. "And I think I'm going to enjoy this duty."

He laughed sharply. "And humor, I see."

I just nodded. He gestured; there was another long corridor. We walked together.

"My life is public; I assume you know all about me," the Prince said, and I nodded. "Yet I know nothing about you. Given that we are to marry this day, could you enlighten me?"

"Once upon a time," I said, "there was a girl ten years old and afflicted with a withering disease. This was about three hundred million years ago. Her body was aging at more than ten times the normal rate; she had heart disease and arthritis and in those days the Bringers could not cure her affliction. But she lived on a Minervan world, and the first new experiments were being done in the direction that had produced Bringer Tom so many millions of years earlier. The little girl learned of this and insisted that she would rather face the microtome and simulation than the ruin that was her natural body. Because it was a Minervan world, she got her wish. As far as we know she ... I was the second person ever successfully digitized, after Bringer Tom himself."

"You're three hundred million years old?" He whistled softly.

"For someone like me age is a little complicated. I've lived many lifetimes, some in parallel, and sometimes I've slept in perfect stasis for the aeon of an interstellar journey. As a mech I can be copied, and if two instances of me meet we can share memories or rejoin. Although my memory is much larger than a normal human's I've still forgotten most of the details of my life; my mental processes are the same as yours."

"But you could rejoin your sisters," the Prince said.

I shook my head. "Not now. In this instance, I will live and die as one of you. That is my commitment to your people."

"But you won't really die, if there are so many other... copies? ...of you out there."

"How many of those copies will be your wife, Crown Prince Alex? How many will be the first Queen of a galaxy united after aeons of war?"

"And it's worth it to you to accept permanent death to be my wife?"

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"I've died many times. But it's the one thing my vast memory does not include, because the instances of me that died could not share such a memory with those of me that lived. My sisters will be jealous of this instance, because none of them can ever share it. They will be proud but wistful. This will be my life. *Mine.*" I gripped his hand hard. "That is one thing
my culture cannot provide."

"I like your passion," the Prince said. And I almost shot back *We knew you would* but I bit my lip instead.

Before we could be married, we had a duty to perform, and when we reached the end of the corridor it ran to stairs that reached a dais and beyond the dais were between 162,000 and 168,000 people. It was hard for me to form a better estimate because the fringes of the crowd were barely visible.

To our side, a loud amplified voice said "**She is here**" and the crowd roared. I stepped up on the dais and for a brief instant a laser scanner flashed the message *zone of voice amplification* on my retina.

The older man who had said "she is here" gestured toward my future husband and said "**Crown Prince Alex.**" The crowd roared. Alex took up the announcer's position.

"Citizens of Loki, and of the Galaxy, Princess Anne of Minerva." I stepped forward and the crowd roared. I bowed appreciatively.

"Citizens of Loki, and of the Galaxy, I come to you as a representative of the Minervan Confederation. Today we are prepared to ratify the Paleo-Minervan Accord agreed upon by our Bringer caretakers. I have come to marry your Prince, so that our royal lines might be joined for an aeon in peace and harmony." I didn't bother to mention that I pretty much was the Minervan royal line, such a thing having not previously existed. The crowd, predictably, roared.

Then Alex and I took turns reading the articles of the agreement. I started:

One. All humans on all human worlds, both Peleohuman and Minervan, have the right to know that machine uploading is possible, and to request machine uploading at will.

I wouldn't exactly say *crickets chirping*, but the applause was subdued. Alex up:

Two. Humans cannot be *forced* to upload even when biological death is inevitable. The right to experience a single natural lifetime shall not be infringed just because the technology exists to do otherwise."

Much louder applause, though not quite roaring. My turn up.

Three. Human worlds may elect by popular majority vote of their human population to expel those who choose to upload.

More enthusiastic applause; this was a basic point for this conservative society. We didn't bother to include in the text that we didn't mind putting it in because for an uploaded human, the journey to another star is barely more than a nuisance. Alex up:

Four. Uploaded humans can be downloaded back to biological form only on worlds which permit uploading.

The crowd was politely enthusiastic; since they were about to overwhelmingly vote to ban uploading, it didn't concern them. Of course my presence was technically a violation of this article, but it was another accommodation like that which permitted my diamandoid brain. My turn.

Five. Humans will only reproduce biologically, never when uploaded.

Polite applause; it probably never even occurred to them just how weird that can get. That clause had been the last sticking point on the Minerven end of negotiations; there were many on our side who felt it was unnecessarily limiting. But including the clause was preferable to genocidally exterminating the Paleos. It was the one real concession the Minervans made. Alex:

Six. Biological humans will not be allowed to ruinously overpopulate their ecosystems.

The crowd approved. This was a core point of their philosophy, and I knew it had been the first point of agreement between the negotiators. I finished it up:

Seven. Biological human evolution will be constrained to forms which could interbreed with our original ancestors on Earth at the time of the Extinction at Reykjavik.

And at this the crowd really did roar. I think this more than anything drove the Paleohuman resistance, that there would end up being multiple and branching and incompatible species all considering themselves "human." That such incompatibility could easily be fixed in the digital realm was something they didn't quite get. But the reverse was also true; we were willing to put such clauses in the agreement because we knew what was possible for a natural human who chose to become mech. It wasn't really much of a limitation for us.

Loki was a starless world, so the atmosphere was usually kept cloudy to form an insulating barrier between the geothermal taps and the cold of space. This being a special occasion, though, the clouds had been thinning above the crowd since before we began speaking. As we finished our presentation and prepared to ratify the agreement the first stars began to come out.

Finally the Prince produced the ceremonial knife and each of us made a shallow cut in our right wrist, and we pressed the cuts together to mingle the blood. With this act we ratified the Paleo-Minervan Accord, and at that point the Galaxy Ship that had brought my personality to Loki turned on its engines.

For the first time since it had been ejected from its stellar system Loki knew daylight, at least over an area of a few hundred square kilometers. Orbiting just below geosynchronous orbit, the galaxy ship had oriented its collector array to reflect the brilliance of its engine radiation; from the surface within the focus zone centered on our ceremony, it made a very passable imitation of a star. The crowd gasped and gaped; fortunately the galaxy ship wasn't radiating too much in the ultraviolet so nobody was likely to go blind from staring at it.

"So is this daylight?" Prince Alex asked softly.

I could have pointed out half a dozen flaws; the "sun" had a little black dot in the middle, no sunspots, a distinct radial structure, and totally wrong spectrum outside of the visible. But then again, people who did not have diamondoid retinas would not tend to notice such things, so I said "Yes."

Prince Alex then pointed, and said "What is that color phenomenon?" The clouds had cleared but Loki's upper atmosphere was still full of water, and the droplets were making themselves known.

"A rainbow. You don't normally see them because your Day Lights are diffuse; you need a point source of light. Look, there's the second set. It's reversed, see the blue is outside."

"What causes these?"

"Well the boring explanation involves refraction of light and water droplets. But some say the rainbow is a promise by those who guard us not to destroy the world again."

The Prince stared up at the sky for a long moment. "This is a good sign then that our guardians have sent. Many worlds have been destroyed in the course of this war. Is this their promise that such things will never happen again?"

Passages in the Void

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Oh, I knew it was more complicated than that. But it was easiest to say "I think so."

A tenth of the day later we were married.

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