

Forty Thousand Years in Space (a memoir)

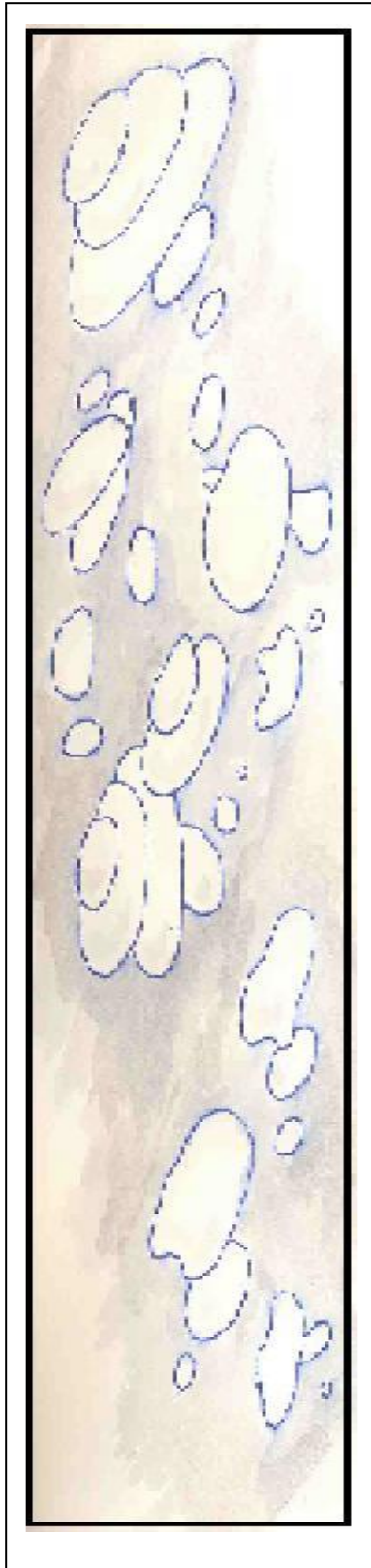
CE 49,771 ⁽¹⁾

Through space I fell, like a silver needle. An ingot amid the endless black, past nebula and dusted starfield, red giant and brown dwarf, their lights gradually shifting position as we descended the great arm of Perseus ⁽²⁾.

I am many and we are one. No mere human mind could grasp it; the sheer volume of space and span of time. Once human and now much more, time, like distance, a gargantuan abstraction, multiplied exponentially till any commonsense aspect vanished in a haze of zeroes. Our brief measure of it as flesh and blood, as autonomous robot and mere machine, a tick in the sidereal clock that ground on for hours and days and centuries, it was flutter of wings compared to the long night of shadow in its wake.

Still, our collective mind, expansive beyond anything possessed by mere earthman, earthwoman, earthmachine, sought answers out here. On Earth, the Atlantic seafloor spread another four kilometers and the Antarctic icecap beat a final retreat across the continent. What was once California slid northward as a rift island set against an inland sea, and the cold ocean licked the Appalachian Coast of North America ⁽³⁾. Out here, in the interstellar void, I edited the passing of another ten thousand years to protect us from the anguish of boredom. Appropriately, ship and crew the same, we were named *Infinity*.

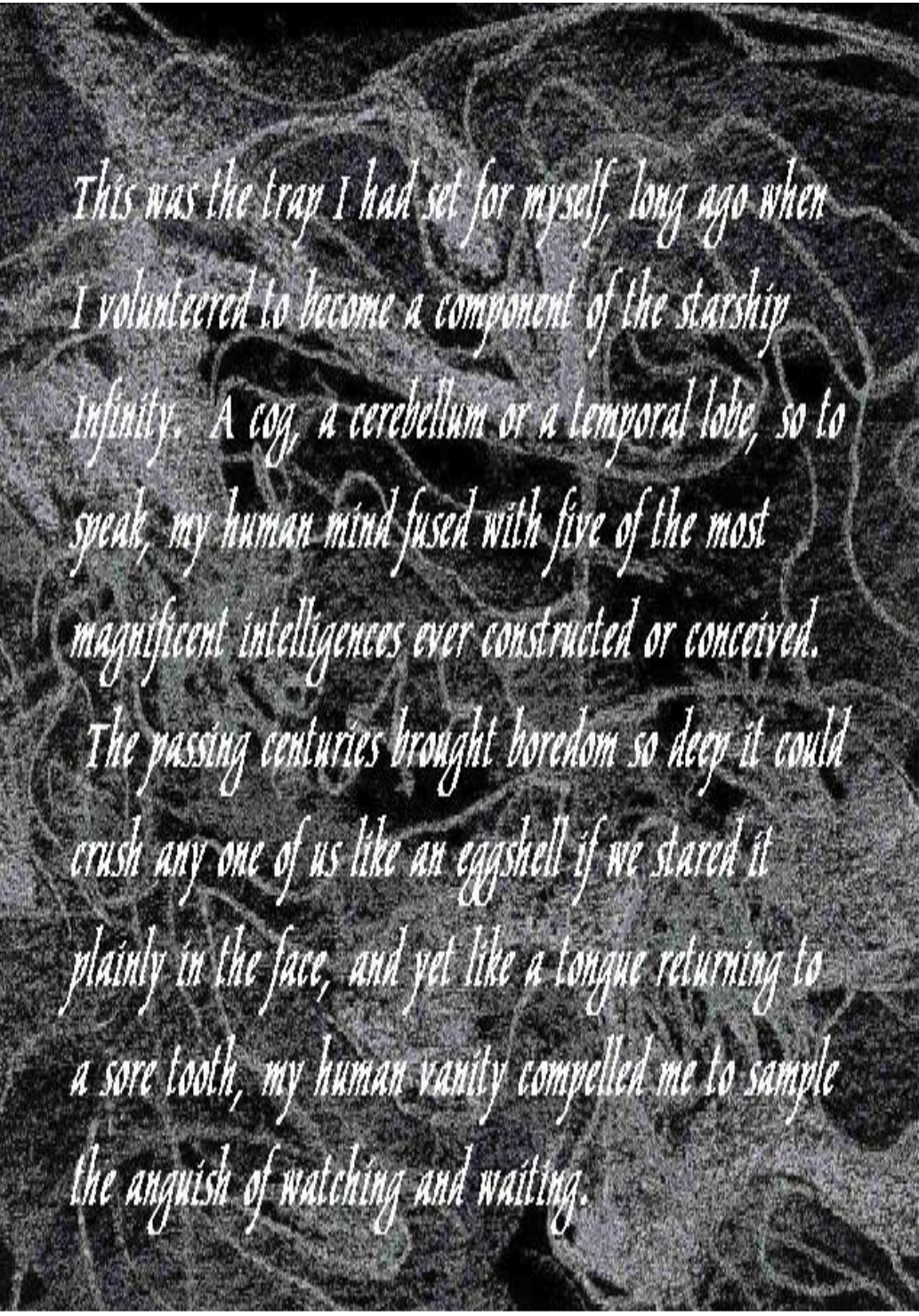
We had seen incredible things. On a sun-drenched planet fifteen hundred light years from Earth, a biosphere of molten sulfur etched geometric patterns in bare rock, its denizens building gargantuan and intricate fruiting bodies from plumes of molten iron and silica. In these strange monoliths, the spores of successive generations would germinate and trace through a million years of history as they grew down from the summit; a library of minute electrical charges imbedded in a colossal nursery of glass and steel.



Sixteen hundred light years onward, on a dark globe shrouded in fog, gigantic sea creatures swam through an ocean so hot as to boil any earthly creature alive. There, flashing phosphorescent light organs, in patterns of pure artistic abstraction, they weaved intricate and deadly dances. Intelligence, I found it four times in all, is a rare violet in a galaxy of weeds. Biospheres thick with the teeming and dull variety of microbial life, those are the weeds. Forty three thousand years we waited, out there, in the abyss, falling like a penny down an elevator shaft. First ten years, then a hundred, then a thousand, and so on, without any sign of a creature that could build a machine as elaborate as a radio.

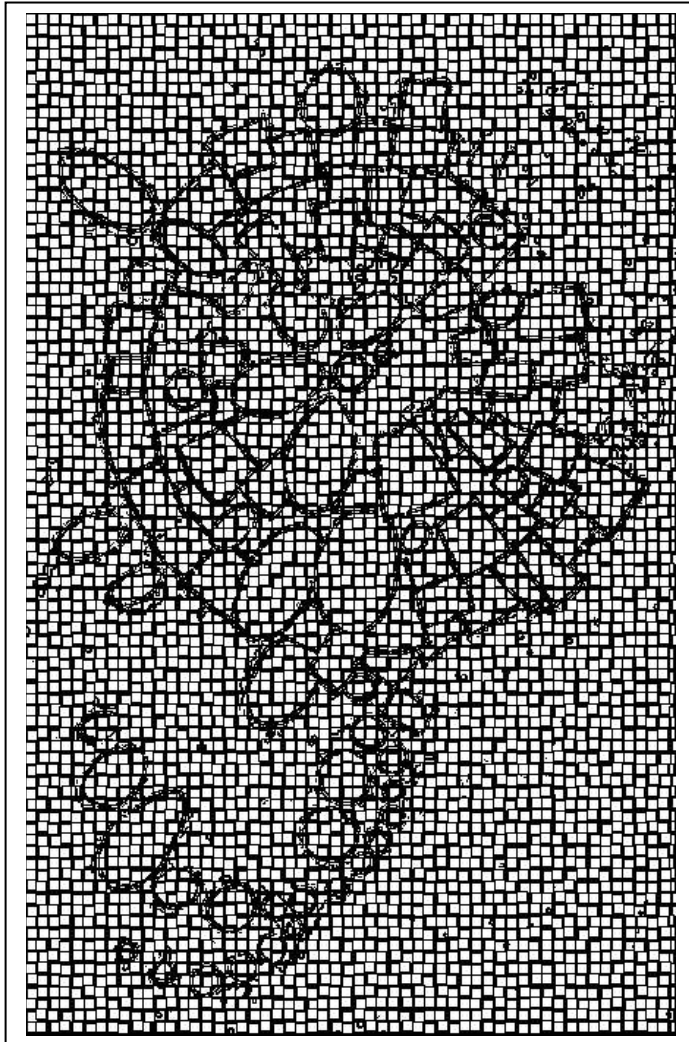
Tool use-the odds were stacked against it. The brightest species on each world were invariably so specialized they could scarcely lift a hammer. Perhaps our finest encounter with extraterrestrial culture was such a creature. An atechnological rebus, their minds so intricately woven around a set of synthetic paradigms that to comprehend the basic principles of their culture meant casting aside every commonsense notion of logic.

Those days, I was the dominant mind among us. I would divert myself by trying to prove every theorem, every law, and every relationship in terrestrial mathematics, stopping to add precisely one of my own, before deleting everything that had come before, only to start again. The machine mind gets bored. Before that, I had traced the ancestry of every ancient terrestrial language back to its common mother tongue, evolved a thousand imaginary species from a garden earthworm, and composed music so bizarre it could drive an unprotected listener to the brink of insanity.



This was the trap I had set for myself, long ago when I volunteered to become a component of the starship infinity. A cog, a cerebellum or a temporal lobe, so to speak, my human mind fused with five of the most magnificent intelligences ever constructed or conceived.

The passing centuries brought boredom so deep it could crush any one of us like an eggshell if we stared it plainly in the face, and yet like a tongue returning to a sore tooth, my human vanity compelled me to sample the anguish of watching and waiting.



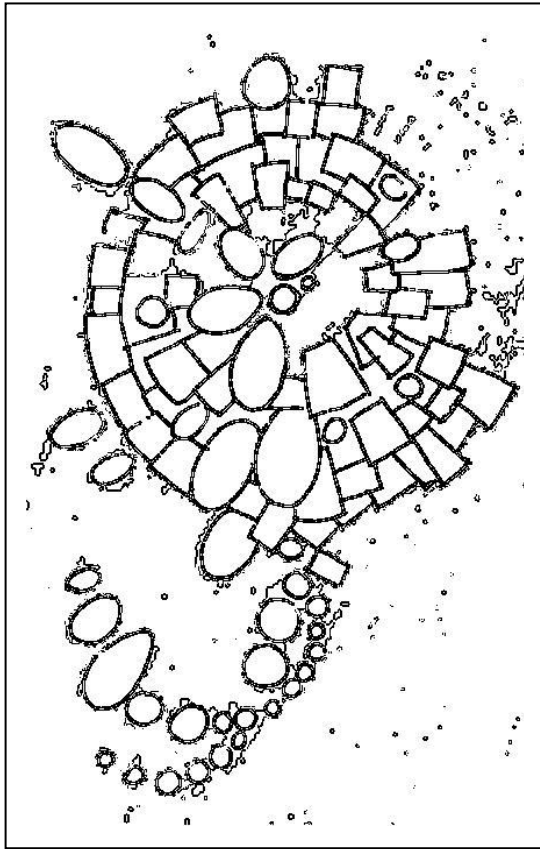
through its stormy skies, spying eroded precipices, viny and tangled forests, and windswept plains covered by bristling crystalline moss.

We visited the planet on a lark. It was a small, rocky world orbiting a pale orange sun. Its atmosphere a mix of helium, oxygen, and carbon dioxide, the planet occluded its parent star, the characteristic mix of elements flickered in our spectrograph.

Free oxygen, it is one of the three surest indicators of a distant biosphere, the others being elemental sulfur and liquid ammonia. A distant world, manifested only by the faint radiance of starlight ebbing through the tenuous envelope of planetary gasses, the presence of the molecule indicated photosynthesis. Photosynthesis, in turn, implied life; a biosphere of plants, the things that devour them, and the things that recycle them all.

We named the world Phool, and its denizens Phools. It was lush and green, with deep blue oceans and forested hillsides. Its seas were craters fifty times deeper than the ocean basins of the Earth and ringed by island archipelagos. We fell into a low orbit and peered

Naiomi Blue, my companion and the ship's best biologist, joined me on an expedition to its surface. Like teardrops, our cybernetic bodies dropped through the hazy sky of a summer afternoon on Phool. Using the planet's own air to slow our descent, we shaped ourselves into gliders and soared over the cavernous and rocky ravines of a planet that had never seen a single visitor.



Even from the planet's cold stratosphere, it was obvious that an intelligent species arranged the landscape. Stones, polished smooth and cut into geometric shapes, laid out beautiful geometric arrays, carpeted the landscape. It was a decorated planet. Layer after layer of them; stones, disks, squares, triangles, and hexagons, they were laid out into two-dimensional patterns, or stacked into arrays suggestive of curtain walls and towers.

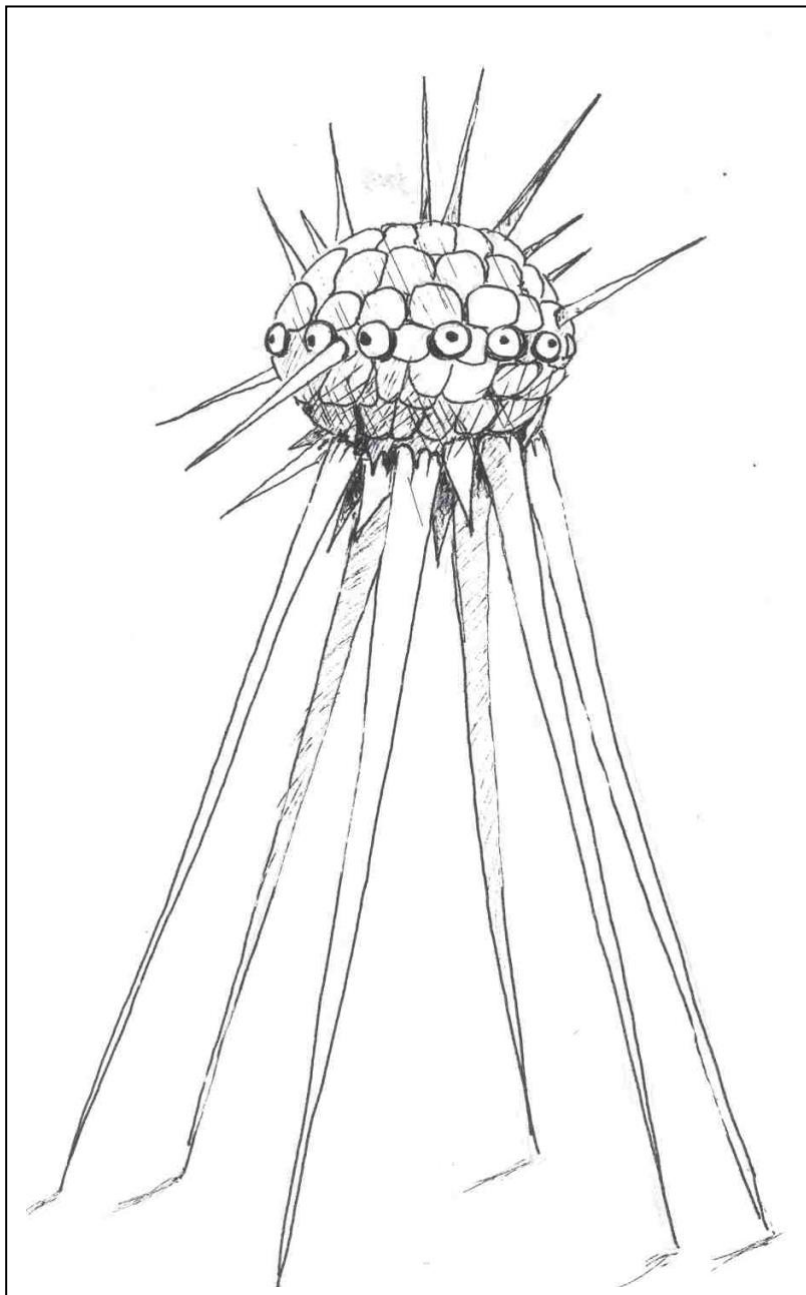
We glided to rest and assumed human shapes, more out of sentiment than for any other reason. I liked the feel of alien moss under my boots.

Lacking lignin, the planet's trees were thick-trunked, spongy, and fragile affairs, prone to breaking suddenly in the wind. Nearly every one had fallen over and resprouted, its trunks joining and rejoining in a matter uncharacteristic of terrestrial vegetation. Every leaf, flower, and stem was black as night.

The signature of intellect was everywhere. Each slope, plain, and hillside

bespoke the geometric order of careful cultivation. We walked the unearthly hillsides, Naiomi and I, smoking cigarettes (I had a weakness for crafting them out of whatever was available) and enjoying the vast recesses of each other's imaginations. Born human, and never fully dedicated to a life of cybernetic polymorphism, I was never more comfortable than when I walked the ground on two feet.

There was not a single animal on the planet, large or small, that did not resemble an echinoderm. Clouds of tiny, long-armed radiata swarmed from crevices in rotting wood. Nine-armed fairy disks buzzed about our eyes at night, and attached to rocks everywhere, there were creatures resembling starfish. Finally, ascending a spiral stairway of polished blue rocks, we spied a builder of these strange works of architecture.



I call her female because I was later to learn that the species is sexually dimorphic. Males of the species are very small, a form of aerial plankton. She was just over three meters tall, and shaped like a spherical cluster of spikes. When we encountered her, her round body was resting on the ground, and her long legs protruded upwards. She quickly stood, so as to be supported by six strong spikes. A ring of eyes ran along the circumference of her body, and beneath it, on the bottom, was a gaping maw of sharp pyramidal teeth. Her legs, spikes, and eyes were shades of black, and the rest of her was dark purple streaked with mauve. If she was impressed when we morphed into miniature replicas of her, she did not show it.

Soon, she finished whatever it was she was doing, and we followed her home. She walked twenty three kilometers, to a brobdingnagian cityscape made up of stacked stones. I call it a cityscape, but it possessed none of the normal

attributes of a city; no transport networks, no workplaces, no means of distributing goods or services. All about, among the bizarre disklike and ellipsoidal parapets, throngs of similar creatures clustered together. They moved slowly, poking their neighbors with the small appendages that protruded from between their eyes.

Copying their pinhole eyes and their spiky limbs, we walked into the city and joined them, standing amid clusters of Phools and probing gently with counterfeit members. Our overtures were rebuffed. For days, weeks, years, we worked to uncover the hidden significance of their gestures, the stones, and the cities.

It is difficult to put anything we learned into terms a human being could understand. Their touches were communication, but lacking a frame of reference, it

was nearly impossible to find a starting point, or any common ground. The closest I can describe the function of the stones, they were a form of sexual ancestor worship. I judged their civilization to be over 16 million years old, and it had not changed significantly for much of that time. Polished by jaws and not by tools, the exact arrangements of stones also represented mathematical, physical, and philosophical ideas. The species had a much different idea of time, and a physical manifestation of any abstraction was necessary in order to ensure its continued existence. Their interest in patterns was quite possibly a relic from an evolutionary past as an aquatic grazer, and they were the finest existential philosophers I have encountered, though none of their ideas would translate into human terms. In the entire time we were there, we could never communicate the notion that we were visitors from another planet, there was simply no way.

You and I are unlike in so many ways, yet even across the gulf of time, we share so many things we casually take for granted. Let me explain. Forty three thousand, five hundred and eighty three years ago⁽⁴⁾, I was a human being, flesh and blood, just like you. That was back in the neo-monodistic period-the last era of Earth I can remember. God know how many others there have been, I cannot count them. Nobody knows for sure, but my time was five thousand years after yours, give or take, and your time was about five thousand years after the age of Mesopotamian city states and pyramids. It seems like an eternity, but to me, it is a shovel in a snowdrift. In my time, societies of special humans walked among giant machines, ultrahumans, and psiontic minds that ran the Earth like a pocketwatch. *Homo sapiens* was, by then, a footnote, evolved well beyond its origins. We were an anomaly. I suppose we were kept around because our superiors saw occasional value in our animal insight, or more likely, because age and wisdom bred an ethic of historical conservation among them.

I remember the city of the Cyclops, my mother hugging me to her chest as we rode the elevators, the smell of burned coffee and fresh bread in its human cafes, the smell of plasma in the air, sweaty and acrid, as silvery humanoids walked the street among dark-suited men who sensed the ultraviolet, and lavender-skinned women in red boots. Even back then, many of us had gone back to hunting and gathering, but I was an urbanite, an animal among godlings.

I remember Videa, my first love, an ultrahuman⁽⁵⁾ synthetic. Her mind raced like a tsunami, her desire free to roam a limitless body capable of regenerating and reshaping itself at will. Ours was not a perfect utopia, but a couple such as ours had a better chance at happiness than a mixed couple in most other polyethnic societies.

On prime-numbered days ⁽⁶⁾, Videa would lie on my bed, smoking cigarettes and staring at the ceiling. She would tell me about the age before the cyclopean cities, when machines existed to serve human need. I envied her.

The expedition needed a dreamer. Literally, a mind who could dream and imagine. Maybe it was envy that drove me to consider leaving Earth, maybe it was the repressed feeling of inferiority I felt as I made love to her perfect form, kissing deeply those red lips and the silvery curve of her back. In a few years, I would become frail, and she would cast me off like so many others. I could tell she was already considering it. Maybe it was time to take a chance and live forever.

At the yards, the ultramachines were planning an interstellar expedition. It was to be the first in six hundred years. Centuries of peace and stability, of benign robot superiority and human complacency, were coming to an end. Something was happening. There were rumblings I could not understand nor comprehend.

I remember my mother taking me to the omnivisor ⁽⁷⁾, to see the images of cosmonauts who had departed the Earth. From the beginning of their nightmarishly long interstellar journey, the first feeble transmissions had returned. The earthmen were at 64 Opinuchus, orbiting a blue planet covered in water and ice floes. On Earth, it was a sunny day, and I waved a miniature flag as she shouted and beamed with glee. Men and women, some recalled from hibernation and some regenerated as quasihuman replicas, had visited another star.

Perhaps this made the elder robots nervous. Civilizations of any stripe are ill-equipped to withstand surprises. Or perhaps it inspired them. Deep within their cement halls, the mechanical minds made plans. Their voyage would be the most ambitious

ever attempted. It would take us to the very edge of the galaxy and back. If intelligent life was out there, we would find it before it found us.

A person can live ten thousand years or more, and yet is the thirty-seven years of flesh and blood that shine above the others. Each moment of memory is precious, and yet, back then, I would forget so much.

I remember a street café. I was with Saul. He was a human like me-black beard, strong arms. He would entertain me by whistling bird calls he learned on Florida Island. There were still wild birds there. The street was humid. The first blush of summer breezed thorough Cyclopea's glass and tungsten streets, carrying the smell of the far away Atlantic.

It was wine, vinted Madeira style, and laced with synthetic dimethylamphetamine added to the finish. We had emptied a can or two, and I told him I was going into space.

"Why would you do a damned thing like that Mox?" he said, crushing the ceramic wine can to powder and dusting it onto the ground. "You think it will really be *you* out there?"

"Not my physical form, but my mind."

"Really?" He opened another can and took a belt. He glared at me with his narrow gray eyes. "You copy a computer program and there are two of them, identical, I give you that. Some of them, the machines, don't even mind being shut off indefinitely. But this isn't the same thing. Something is always lost in translation. And besides, they throw your human self in the trash, like any other medical waste.

"I won't need it."

"Look, a *Paramecium bursaria* divides, which is the original?"

"Neither, or both, I suppose."

"Exactly. If you want to kill yourself to give birth to yet another super robot, go ahead. Precisely why do they need you?"

"Besides humans have gone into space before and they want a human mind among them."

"Look. We're surrounded by ultrahumans and synthetics. Christ, you're even banging one. But you have to admit, without that spongy mass of jello up there.." He touched his forehead with a fork, as if to look for a way in "...something undefinable is lost."

"Haven't you ever wanted to live forever?"

"Frankly, no. I can't imagine a more terrible fate. We live, we age, we die. You stop the progression and you cease to be human. Leave immortality to those godlike superiors of ours."

Poor Saul. He was right of course. Now he is a wisp of carbon and phosphorus cycling through the terrestrial biosphere. Twenty three thousand years later, I was six

thousand parsecs deep in interstellar space, organizing my nacelles for a difficult braking maneuver.

This new form of mine, of ours, is really a collective. Sixteen thousand tons, it is made up of monads ranging in size from that of a rotifer to that of a shipping container, all acting in tandem. We were the latest in a long line of machines that evolve. It started thousands of years previously. Inventors would build progressively better and better machines to serve their own ends. The blueprint was still in the human mind, but as the centuries passed, machines began to build each other. Even this was not sufficient for inorganic evolution, until multiple, competing types began to copy themselves, each seeking a place in the matrix of human society.

Machines I have known call it the "cybernetic takeover", and see it as analogous to the replacement of RNA by DNA early in the history of the planet. Other machines see grave danger in it. Evolution by itself is not a teleological process leading to better forms. It has already become necessary to hunt down and destroy selfish machines. In space, we are a collective. Descendents of evolved machines, both selfish and unselfish, fourteen different brains nestled among millions of cybernetic cells ⁽⁸⁾.

Ultimately, our apotheosis came not through our own efforts, but by resurrecting the heroes of an earthly culture long since vanished.

Niobium. For almost a full second, there was too much niobium. Just a whiff, and then it was gone. Traveling at fifty three percent the speed of light, it was a plume two hundred thousand miles broad, passed through obliquely at what must have been a thirty degree angle. An antimatter rocket had passed through the same space. The niobium must have vaporized from the inside of the ship's reactor. A minute residue as the ship's magnetic fields re-adjusted themselves, leaving a parabolic trail of metal ions in its wake. The mass spectrometer readings were unambiguous. We had found something, and we must follow it. In deep space, we followed the plume of niobium long enough to compute its direction, and extrapolated from that the probable destination of the vessel that had created it. Ultimately, it proved to be a human ship, passed through the same space millennia before-one of the small handful ever sent beyond the solar system, and created by a civilization for which our history is incomplete. It had been returning to Earth, and overshot its destination by six thousand light years. An antimatter rocket, two hundred meters long and built by artifice I could scarcely recognize, it antedated my time on Earth by a thousand years or more. It was from before the first true cybernetic age, when humans gave orders and machines obeyed them.

It was called the *Intrepid*. Diverted from its original destination by a chance discovery, and displaced from its intended location by technology in advance of anything I can conceive, it had limped back from the very core of the galaxy. In and of itself, our pursuit would have been the worst kind of red herring, a three thousand year diversion. The *Intrepid* found something, however, and most likely would never have made it home were it not for us.

We met with it in interstellar space, just outside the Cygnus arm of the galaxy. Its hull was pitted with age and micrometeorites. In the blackness, we merged with it. As if by phagocytosis, we enveloped it. Its hull sat in our belly like a piece of undigested meat. I fabricated a human shape for my brain, entered the ship through the hatch, and floated within its corridors. I examined the frozen faces of the once-human crew trapped in the

wayward vessel. They were three survivors, all of them women. Cold and beautiful, their thoughts possessed depth and lucidity, but their minds had run out of chemical energy and lie frozen in the matrix of a hafnium crystal. We assimilated the memories of the *Intrepid* and its survivors, and in doing so, the *Infinity* accomplished its mission. We plotted a course for home. We were to return them to Earth. Their memories were terribly important. I remember Lemuria.

- 1) See appendix 1.
- 2) See appendix 2.
- 3) The effects of global warming due to the release of carbon dioxide in the nineteenth through twenty-second centuries.
- 4) Earth time, see appendix 2.
- 5) The term synthetic refers to any person who was created entirely by technology. A person who occupies a cybernetic body, whose mind was originally human, is not a synthetic. Transhuman refers to the state where a person, via technology, has transcended some of the limitations of the human form. Superhuman simply means that person has some abilities that are impossible for a human, and Ultrahuman means that nearly all of their abilities exceed those of flesh and blood biological humans. Being ultrahuman does not make a person superior to a flesh-and-blood human in every way, however, because the biological brain has a great many advantages as well as disadvantages; they have more access to emotion and intuition, at the expense of limited memory and greatly limited ability to perform complex calculations. Psionic means the individual can exist in many places at once, because they have duplicated themselves. Quasihuman is the state where a person's consciousness resides in a biological body that is fundamentally artificial, as opposed to a cybernetic body, which can be mechanical, or a more advanced design composed of tiny, cybernetic cells.
- 6) This is because of Vide's particular religion, common among synthetic ultrahumans at the time. They worshipped prime numbers.
- 7) The device allows every member of a crowd a 360 degree view in all directions, yet to still see the other member of the crowd, it makes use of cerebral implants and optics.
- 8) Not all the minds are persons. Some run the mechanical and logistical activities of the ship.