

Morgan's mother and father had given him a state-of-the-art inheritance. It was only state-of-the-art 2117 but they had seen where the world was going. They had mortgaged twenty percent of their future income so they could order a package that included all the genetic enhancements Morgan's chromosomes could absorb, along with two full decades of postnatal development programs. Morgan was in his fifties when his father committed suicide. By that time his father could barely communicate with half the people he encountered in his day-to-day business activities.

Morgan's mother survived by working as a low-level freelance prostitute. The medical technology that was state-of-the-art 2157 could eliminate all the relevant physical effects of aging and a hidden computer link could guide her responses. For half an hour-- as long as no one demanded anything too unusual-- she could give her younger customers the illusion they were interacting with someone who was their intellectual and psychological equal. Morgan tried to help her, but there wasn't much he could do. He had already decided he couldn't survive in a Solar System in which half the human population had been born with brains, glands, and nervous systems that were state-of-the-art-2150 and later. He had blocked his mother's situation out of his memory and lived at subsistence level for almost three decades. Every yen, franc, and yuri he could scrape together had been shoved into the safest investments his management program could locate. Then he had taken all his hard won capital and bought two hundred shares in an asteroid habitat a group of developers had outfitted with fusion reactors, plasma drives, solar sails, and anything else that might make a small island move at nine percent the speed of light. And he and three thousand other "uncompetitive", "under-enhanced" humans had crept away from the Solar System. And set off to explore the galaxy.

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Morgan had lived through three lengthy pairings back in the Solar System. Six years after the Island of Adventure had begun its slow drift away from the sun, he established a fourth pairing with a woman he had met through the ship's information system. The ship's designers had endowed it with attractive common spaces, complete with parks and cafes, but most of the passengers seemed to prefer electronic socialization during the first years of the voyage. Biographies and lists of interests were filed with the system. Pseudonyms and electronic personalities proliferated. Morgan thought of old stories in which prisoners had communicated by tapping on the walls of their cells.

Savela Insdotter was eleven years younger than Morgan but she was a fully committed member of the EruLabi communion. She used pharmaceutical mental enhancers, but she used them sparingly. Morgan consumed all the mental enhancers his system could accommodate, so his functional intelligence was actually somewhat higher than hers in certain areas.

The foundation of the EruLabi ethos was a revolt against genetic enhancement. In the view of the EruLabi "mentors", the endless quest for intellectual and physical improvement was a folly. Life was supposed to be lived for its own sake, the EruLabi texts declared. Every moment was a gift that should be treasured for the pleasure it brought, not an episode in a quest for mental and physical perfection. The simplest pleasures-- touches, languor, the textures of bodies pressed together-- were, to the EruLabi, some of the most profound experiences life had to offer.

One of the most important texts in the EruLabi rituals was the words, in

ancient Greek, that the Eudoran king had spoken to Odysseus: Dear to us ever are the banquet and the harp and the dance and the warm bath and changes of raiment and love and sleep.

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The Island of Adventure had pointed itself at 82 Eridani-- a Sol-type star twenty-one light years from the Solar System. 82 Eridani was an obvious candidate for a life-bearing planet. A fly-by probe had been launched at 82 Eridani in 2085-- one hundred and eighteen years before Morgan and his fellow emigrants had left their home system. In 2304-- just after they had celebrated the first century of their departure-- the Island of Adventure intercepted a message the probe was sending back to the Solar System.

It was the beginning of several years of gloomy debate. The probe had found planets. But none of them looked any more interesting than the cratered rocks and giant iceballs mankind had perused in the Solar System.

The third planet from the sun could have been another Earth. It was closer to its sun than Earth was but it could have supported life if it had been the right size. Unfortunately, the planet's mass was only thirty-eight percent the mass of Earth.

Theorists had calculated that a planet needed a mass about forty percent the mass of Earth if it was going to develop an oxygen-rich atmosphere and hold it indefinitely. The third planet was apparently just a little too small. The images transmitted by the probe were drearily familiar-- a rocky, airless desert, some grandiose canyons and volcanoes, and the usual assortment of craters, dunes, and minor geological features.

The Island of Adventure had set out for 82 Eridani because 82E was a star of the same mass and spectral type as Sol. The second choice had been another star in the same constellation. Rho Eridani was a double star 21.3 light years from the Solar System. The two stars in the Rho system orbited each other at a promising distance-- seven light hours. With that much separation between them, the theoreticians agreed, both stars could have planets.

When you looked at the sky from the Solar System, Rho was a few degrees to the left of 82 Eridani. The Island of Adventure was a massive, underpowered rock but it could make a small midcourse correction if its inhabitants wanted to expend some extra reaction mass.

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The strongest opposition to the course change came from the oldest human on the ship. Madame Dawne was so old she had actually been born on Earth. All the other people on board had been born (created, in most cases) in the habitats the human race had scattered across the Solar System.

The Island of Adventure had been the first ship to embark for 82 Eridani. Thirty-two years after it had left the Solar System, a ship called Green Voyager had pointed its rocky bow at Rho. The texts of its transmissions had indicated the oldest passengers on the Green Voyager were two decades younger than the youngest passengers on the Island of Adventure.

If the passengers on the Island of Adventure approved the course change, they would arrive at Rho about the same time the Green Voyager arrived there. They would find themselves sharing the same star system with humans who were, on average, three or four decades younger than they were. Madame Dawne would be confronted with brains and bodies that had been designed a full century after she had received her own biological equipment.

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Morgan was not a politician by temperament but he was fascinated by any activity that combined conflict with intellectual effort. When his pairing with Savela Insdotter had finally come to an end, he had isolated himself in

his apartment and spent a decade and a half studying the literature on the dynamics of small communities. The knowledge he had absorbed would probably look prehistoric to the people now living in the Solar System. It had been stored in the databanks pre-2203. But it provided him with techniques that should produce the predicted results when they were applied to people who had reached adulthood several decades before 2200.

The Island of Adventure was managed, for all practical purposes, by its information system. A loosely organized committee monitored the system but there was no real government. The humans on board were passengers, the information system was the crew, and the communal issues that came up usually involved minor housekeeping procedures.

Now that a real issue had arisen, Morgan's fellow passengers drifted into a system of continuous polling-- a system that had been the commonest form of political democracy when they had left the Solar System. Advocates talked and lobbied. Arguments flowed through the electronic symposiums and the face-to-face social networks. Individuals registered their opinions-- openly or anonymously-- when they decided they were willing to commit themselves. At any moment you could call up the appropriate screen and see how the count looked.

The most vociferous support for the course change came from eight individuals. For most of the three thousand fifty-seven people who lived in the ship's apartments, the message from the probe was a minor development. The ship was their home-- in the same way a hollowed out asteroid in the Solar System could have been their home. The fact that their habitat would occasionally visit another star system added spice to the centuries that lay ahead, but it wasn't their primary interest in life. The Eight, on the other hand, seemed to feel they would be sentencing themselves to decades of futility if they agreed to visit a lifeless star system.

Morgan set up a content analysis program and had it monitor the traffic flowing through the public information system. Eighteen months after the message from the probe had triggered off the debate, he put a two-axis graph on the screen and examined a pair of curves.

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Morgan's pairing with Savela Insdotter had lasted over sixty years and they had remained friendly after they had unpaired. He showed her the graph as soon as he had run it through some extra checks. The curve that charted the Eight's activities rose and fell in conjunction with the curve that measured Madame Dawne's participation in the debate. When Madame Dawne's activity level reached a peak, the Eight subsided into silence. They would stop agitating for their cause, the entire discussion would calm down, and Madame Dawne would return to the extreme privacy she had maintained from the beginning of the voyage. Then, when Madame Dawne hadn't been heard from for several tendays, the Eight would suddenly renew their campaign.

"I believe they're supporting the change to a new destination merely because they wish to disturb Madame Dawne," Morgan said. "I've created personality profiles based on their known histories and public statements. The profiles indicate my conjecture is correct."

Savela presented him with a shrug and a delicate, upward movement of her head. Morgan had spoken to her in Tych-- an ultra-precise language that was primarily used in written communication. Savela was responding in an emotion-oriented language called VA13-- a language which made extensive use of carefully rehearsed gestures and facial expressions.

No one, as far as Morgan knew, had ever spoken VA12 or VA14. The language had been labeled VA13 when it had been developed in a communications laboratory on Phobos, and the label had stuck.

"Madame Dawne is a laughable figure," Savela said.

"I recognize that. But the Eight are creating a serious division in our communal life. We might have reached a consensus by now if they hadn't

restimulated the debate_ every time it seemed to be concluding. Madame Dawne is one of the eleven wealthiest individuals on the ship. What would happen to us if she decided she had to impose her will by force?"

"Do you really feel that's a serious possibility, Morgan?"

The linguists who had developed VA13 had been interested in the emotional content of music. The speaker's tone patterns and rhythms were just as critical as the verbal text. Savela's word choices were polite and innocuous, but her rhythms communicated something else-- a mixture of affection and amusement that would have seemed contemptuous if she and Morgan hadn't shared a pairing that had lasted six decades.

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To Morgan, Madame Dawne was pathetic, not comic. She spent most of her days, as far as anyone could tell, in the electronic dream worlds she constructed in her apartment. No one on the ship had seen her true face. When she appeared on someone's screens, her electronic personae were impressively unimaginative. She usually imaged herself as a tall woman, with close cropped red hair, dressed in the flamboyant boots-and-baggy-shirts style that North Americans had adapted during the third decade of the 21st Century-- the body type and clothing mode that had been fashionable when she had been in her natural prime.

Morgan had put a wargame template on his information system and had it explore some of the things Madame Dawne could do. Savela might smile at the thought that a limited, underdeveloped personality like Madame Dawne might undertake something dangerous. The wargame program had come up with seventy-four weapon systems a wealthy individual could develop with the aid of the information in the databanks. Half the systems were straightforward modifications of the devices that dug out apartment spaces and extracted mineral resources from the rocky exterior of the ship. Most of the others involved an offensive use of the self-eplicating machines that handled most of the passengers' daily needs.

Madame Dawne couldn't have designed any of the machines the wargame program had suggested. She probably didn't even know the ship could place them at her disposal. Did she realize she could ask a wargame program for advice? Morgan didn't know.

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Morgan's political studies had included an exhaustive module in applied personality profiling. He could recite from memory the numbers that described the kind of person who could become a successful small-community politician. He hadn't been surprised when his profiling program had told him he scored below average on most of the critical personality characteristics. He had made several attempts to enter the course change controversy and the results would have evoked I-told-you-so head shakes from the technicians who had developed the profiling program. The program had been almost cruelly accurate when it had informed him he had a low tolerance for disagreement. He could have given it fifty examples of his tendency to become hot tempered and defensive when he attracted the attention of aggressive debaters. For the last few months, he had been avoiding the public symposiums and feeding private suggestions to people who could turn his ideas into effective attempts at persuasion. Now he fleshed out the profiles he had been storing in his databanks and started recruiting a six member political team.

Morgan couldn't proselytize prospects and debate verbal brawlers, but he had discovered he could do something that was just as effective: he could win the cooperation of the people who could. Some of the people he approached even enjoyed accosting their fellow citizens and lobbying them on political issues. They couldn't always follow Morgan's logic but they considered that a minor problem. They were extroverted, achievement-oriented personalities and Morgan

gave them suggestions that worked. If he told them a visit to X made good sense at this moment, and a visit to Y would be a waste of time, they approached both prospects the first couple of times he made a recommendation, and followed his advice after that.

Most of the political strategies Morgan had studied could be fitted into three categories: you could be combative and confrontational, you could market, or you could explore the subtleties of the indirect approach. Temperamentally, Morgan was a marketer who liked to use the indirect approach. Once he had his political organization going, he ran another analysis of the profiles in his databanks and organized a Terraforming Committee. Five engineering-oriented personalities sat down with a carefully selected political personality and began looking at the possibility some of the planets of 82 Eridani could be transformed into livable environments. Eight months after Morgan had established the committee, the first simulated planetary environment took its place in the public databanks. Interested individuals could soar across a planetary landscape that included blue skies, towering forests, and creatures selected from three of Earth's geologic eras and two of its mythological cycles.

It took almost five years, but Morgan's efforts succeeded. An overwhelming consensus emerged. The ship would stay on course.

Unfortunately, the Eight still seemed to enjoy baiting Madame Dawne. By this time, however, Morgan had constructed detailed profiles of every personality in the octet.

The most vulnerable was a woman named Miniruta Coboloji. Miniruta's primary motivation, according to the profile program, was an intense need for affiliation.

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Morgan had known his pairing with Savela Insdotter would end sooner or later. Everything had to end sooner or later. The surprise had been the identity of the man who had succeeded him.

Morgan had assumed Savela would grow tired of his skeptical, creedless outlook and pair with someone who shared her beliefs. Instead, her next partner had been Ari Sun-Dalt-- the outspoken champion of a communion that had been founded on the belief that every member of the human race was involved in a cosmic epic: the struggle of matter to become conscious.

Life was not an accident, the advocates of Ari's worldview asserted. It was the purpose of the universe. The idea that dominated Ari's life was the Doctrine of the Cosmic Enterprise-- the belief that the great goal of the cosmos was the unlimited expansion of Consciousness.

Ari had been adding organic and electronic enhancements to his brain ever since he had been in his thirties. The skin on the top of his skull concealed an array that included every chip and cell cluster his nervous system would accept. His head was at least twenty-five percent longer, top to bottom, than a standard male head. If something could increase his intelligence or heighten his consciousness, Ari believed it would be immoral not to install it.

"We can always use recruits," Ari said. "But I must tell you, my friend, I feel there's something cynical about your scheming."

Morgan shrugged. "If I'm right, Miniruta will be ten times more contented than she is now. And the ship will be serener."

They were both speaking Jor-- an everyday language, with a rigidly standardized vocabulary, which had roots in 21st century French. Morgan had told Ari he had detected signs that Miniruta would be interested in joining his communion, and Ari had immediately understood Morgan was trying to remove Miniruta from the Eight. Ari could be surprisingly sophisticated intellectually. Most people with strong belief systems didn't like to think about the psychological needs people satisfied when they joined philosophical movements.

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Miniruta joined Ari's communion a year after Ari set out to convert her. She lost interest in the Eight as soon as she acquired a new affiliation-- just as Morgan's profiles had predicted she would. Morgan had been preparing plans for three other members of the group but Miniruta's withdrawal produced an unexpected dividend. Two of the male members drifted away a few tendays after Miniruta proclaimed her new allegiance. Their departure apparently disrupted the dynamics of the entire clique. Nine tendays after their defection, Morgan could detect no indications the Eight had ever existed.

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On the outside of the ship, in an area where the terrain still retained most of the asteroid's original contours, there was a structure that resembled a squat slab with four circular antennas mounted at its corners. The slab itself was a comfortable, two story building, with a swimming pool, recreation facilities, and six apartments that included fully equipped communication rooms.

The structure was the communications module that received messages from the Solar System and the other ships currently creeping through interstellar space. It was totally isolated from the ship's electronic systems. The messages it picked up could only be examined by someone who was actually sitting in one of the apartments. You couldn't transfer a message from the module to the ship's databanks. You couldn't even carry a recording into the ship.

The module had been isolated from the rest of the ship in response to a very real threat: the possibility someone in the Solar System would transmit a message that would sabotage the ship's information system. There were eight billion people living in the Solar System. When you were dealing with a population that size, you had to assume it contained thousands of individuals who felt the starships were legitimate targets for lethal pranks.

Morgan had been spending regular periods in the communications module since the first years of the voyage. During the first decades, the messages he had examined had become increasingly strange. The population in the Solar System had been evolving at a rate that compressed kilocenturies of natural evolution into decades of engineered modification. The messages that had disturbed him the most had been composed in the languages he had learned in his childhood. The words were familiar but the meaning of the messages kept slipping away from him.

Morgan could understand that the terraforming of Mars, Venus, and Mercury might have been speeded up and complexified by a factor of ten. He could even grasp that some of the electronically interlinked communal personalities in the Solar System might include several million individual personalities. But did he really understand the messages that seemed to imply millions of people had expanded their personal physiologies into complexes that encompassed entire asteroids?

The messages included videos that should have eliminated most of his confusion. Somehow he always turned away from the screen feeling there was something he hadn't grasped.

The situation in the Solar System had begun to stabilize just before Morgan had turned his attention to the turmoil created by the Eight. Over the next few decades the messages became more decipherable. Fifty years after the problem with the Eight-- one hundred and sixty two years after the ship had left the Solar System-- almost all the messages reaching the ship came from members of Ari Sun-Dalt's communion.

The believers in the Doctrine of the Cosmic Enterprise were communicating with the starships because they were becoming a beleaguered minority. The great drive for enhancement and progress had apparently run its course. The worldviews that dominated human civilization were all variations on the

EruLabi creeds.

Ari spent long periods-- as much as ten or twelve tendays in a row-- in the communications module. The human species, in Ari's view, was sinking into an eternity of aimless hedonism.

Ari became particularly distraught when he learned the EruLabi had decided they should limit themselves to a twenty percent increase in skull size-- a dictum which imposed a tight restriction on the brainpower they could pack inside their heads. At the peak of the enhancement movement, people who had retained normal bipedal bodies had apparently quadrupled their skull sizes.

"We're the only conscious, intelligent species the Solar System ever produced," Ari orated in one of his public communiques. "We may be the only conscious, intelligent species in this section of the galaxy. And they've decided an arbitrary physiological aesthetic is more important than the development of our minds."

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The messages from the Solar System had included scientific discussions. They had even included presentations prepared for "nonspecialists". Morgan had followed a few of the presentations as well as he could and he had concluded the human species had reached a point of diminishing returns.

Morgan would never possess the kind of complexified, ultra-enhanced brain his successors in the Solar System had acquired. Every set of genes imposed a ceiling on the organism it shaped. If you wanted to push beyond that ceiling, you had to start all over again, with a new organism and a new set of genes. But Morgan believed he could imagine some of the consequences of that kind of intellectual power.

At some point, he believed, all those billions of superintelligent minds had looked out at the Universe and realized that another increase in brain power would be pointless. You could develop a brain that could answer every question about the size, history, and structure of the universe, and find that you still couldn't answer the philosophical questions that had tantalized the most primitive tribesmen. And what would you do when you reached that point? You would turn your back on the frontier. You would turn once again to the bath and the banquet, the harp and the dance.

And changes of raiment.

And love.

And sleep.

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The situation on the ship was almost the mirror image of the situation in the Solar System. On the ship, forty-eight percent of the population belonged to Ari's communion. Only nineteen percent had adopted the EruLabi creeds. But how long could that last? Morgan had been watching the trends. Every few years, someone abandoned the Doctrine of the Cosmic Enterprise and joined the EruLabi. No one ever left the EruLabi and became a devoted believer in the Cosmic Enterprise.

The discovery that 82 Eridani was surrounded by lifeless planets had added almost a dozen people to the defectors. The search for life-bearing planets was obviously a matter of great significance. If consciousness really was the purpose of the universe, then life should be a common phenomenon.

In 2315, just four years after the final dissolution of the Eight, the Island of Adventure had received its first messages from Tau Ceti and Morgan had watched a few more personalities float away from Ari's communion. The ship that had reached Tau Ceti had made planetfall after a mere one hundred and forty years and it had indeed found life on the second planet of the system. Unfortunately, the planet was locked in a permanent ice age. Life had evolved in the oceans under the ice but it had never developed beyond the level of the

more mundane marine life forms found on Earth.

Morgan had found it impossible to follow the reasons the planet was iced over. He hadn't really been interested, to tell the truth. But he had pored over the reports on the undersea biota as if he had been following the dispatches from a major war.

One of the great issues in terrestrial evolutionary theory had been the relationship between chance and necessity. To Ari and his disciples, there was nothing random about the process. Natural selection inevitably favored qualities such as strength, speed, and intelligence.

To others, the history of life looked more haphazard. Many traits, it was argued, had developed for reasons as whimsical as the fact that the ancestor who carried Gene A had been standing two steps to the right when the rocks slid off the mountain.

The probes that had penetrated the oceans of Tau Ceti IV had sent back images that could be used to support either viewpoint. The undersea biota was populated by several hundred species of finned snakes, several thousand species that could be considered roughly comparable to terrestrial insects, and clouds of microscopic dimlight photosynthesizers.

Yes, evolution favored the strong and the swift. Yes, creatures who lived in the sea tended to be streamlined. On the other hand, fish were not inevitable. Neither were oysters. Or clams.

If the Universe really did have a purpose, it didn't seem to be very good at it. In the Solar System, theorists had produced scenarios that proved life could have evolved in exotic, unlikely environments such as the atmosphere of Jupiter. Instead, the only life that had developed outside Earth had been the handful of not-very-interesting microorganisms that had managed to maintain a toehold on Mars.

The purpose of the universe isn't the development of consciousness, one of the EruLabi on board the Island of Adventure suggested. It's the creation of iceballs and deserts. And sea snakes.

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Ari's enhancements included a gland modification that gave him the ability to switch off his sexual feelings at will. His pairing with Savela Insdotter had lasted less than two decades, and he had made no attempt to establish another pairing. Ari had spent most of the voyage, as far as Morgan could tell, in an asexual state.

There were times, during the last decades of the voyage, when Morgan felt tempted to emulate him. Morgan's next pairing only lasted twelve years. For the rest of the voyage, he took advantage of the small number of sexual opportunities that came his way and distracted himself, during his celibate intervals, with intellectual projects such as his political studies.

The ship's medical system could install Ari's sexual enhancement in thirty minutes, as part of the regular medical services included in the standard embarkation agreement. Morgan put the idea aside every time he considered it. He had learned to cherish his feelings about women, irrational as they might be. There was, he knew, no real reason why he should respond to the flare of a woman's hips or the tilt of a female neck. It was simply a bit of genetic programming he hadn't bothered to delete. It had no practical value in a world in which children were created in the workshops of genetic designers. But he also knew he would be a different person if he subtracted it from his psychological make up. It was one of the things that kept you human as the decades slipped by.

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In 2381-- forty-six years before it was scheduled to reach its destination-- the Island of Adventure intercepted a message from the probe that had been sent to Rho Eridani. Neither of the stars in the double system

possessed planets. The Green Voyager was crawling toward an empty system.

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In 2398-- one hundred and ninety five years after the ship had begun its journey-- the medical system replaced Morgan's heart, part of his central nervous system, and most of his endocrine glands. It was the third time Morgan had put himself through an extensive overhaul. The last time he had recovered within three years. This time he spent eight years in the deepest sleep the system could maintain.

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The first program capsules left the ship while it was still careening around the 82 Eridani system, bouncing from planet to planet as it executed the five year program that would eliminate the last twenty percent of its interstellar speed. There were three capsules and their payloads were packages a little smaller than Morgan's forefinger.

One capsule malfunctioned while it was still making its way toward the small moon that orbited the third planet at a distance of 275,000 kilometers. The second lost two critical programs when it hit the moon at an angle that was a little too sharp. The third skimmed through the dust just like it was supposed to and sprouted a set of filaments. Sampling programs analyzed the moon's surface. Specks that were part cell and part electronic device began drifting down the filaments and executing programs that transformed the moon's atoms into larger, more elaborate specks. The specks produced machines the size of insects, the insects produced machines the size of cats, an antenna crept up the side of a small crater, and an antenna on the Island of Adventure started transmitting more programs. By the time the ship settled into an orbit around the third planet, the moon had acquired a complete manufacturing facility, and the lunar fabrication units had started producing scout machines that could land on the planet itself.

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Morgan had thought of the terraforming scheme as a political ruse, but there were people on the ship who took it seriously. With the technology they had at their disposal, the third planet could be turned into a livable world within a few decades. For people who had spent their entire lives in enclosed habitats, it was a romantic idea-- a world where you walked on the surface, with a sky above you, and experienced all the vagaries of weather and climate.

The only person who had raised any serious objections had been Ari Sun-Dalt. Some of the valleys they could observe from orbit had obviously been carved by rivers. The volcano calderas were less spectacular than the volcanoes of Mars but they were still proof the planet had once been geologically active. They couldn't overlook the possibility life might be hiding in some obscure ecological network that was buried under the soil or hidden in a cave, Ari argued.

Most of the people on the ship greeted that kind of suggestion with shrugs and smiles. According to Morgan's sampling programs, there were only about ten people on the ship who really thought there was a statistically significant possibility the planet might have generated life. Still, there was no reason they couldn't let Ari enjoy his daydreams a little longer.

"It will only take us an extra two or three years," Ari said. "And then we'll know we can remodel the place. First we'll see if there's any life. Then we'll do the job ourselves, if the universe hasn't done it already. And bring Consciousness to another world."

For Ari's sake-- he really liked Ari in many ways-- Morgan hoped they might find a few fossilized microorganisms embedded in the rocks. What he did not expect was a fossil the size of a horse, embedded in a cliff, and visible

to any machine that came within two kilometers of it.

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Three and a half billion years ago, the planet had emerged from the disk of material that surrounded its sun. A billion or so years later, the first long-chain molecules had appeared in the oceans. And the history of life had begun. In the same way it had begun on Earth.

The long-chain molecules had formed assemblies that became the first rudimentary cells. Organisms that were something like plants had eventually begun to absorb the CO₂ produced by the volcanoes. The oxygen emitted by the quasi-plants had become a major component of the atmosphere. The relentless forces of competition had favored creatures who were more complex than their rivals.

And then, after less than two billion years of organic evolution, the laws of physics had caught up with the process. No planet the size of this one could hold an atmosphere forever.

The plants and the volcanoes could produce oxygen and CO₂ almost as fast as the gas molecules could drift into space. But almost wasn't good enough.

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They didn't piece the whole story together right away, of course. There were even people who weren't convinced the first find was a fossil. If the scout machines hadn't found ten more fossils in the first five daycycles, the skeptics would have spent years arguing that Exhibit A was just a collection of rocks-- a random geologic formation that just happened to resemble a big shell, with appendages that resembled limbs.

On Earth, the dominant land animals had been vertebrates-- creatures whose basic characteristic was a bony framework hung on a backbone. The vertebrate template was such a logical, efficient structure it was easy to believe it was as inevitable as the streamlined shape of fish and porpoises. In fact, it had never developed on this planet.

Instead, the basic anatomical structure had been a tube of bone. Creatures with this rigid, seemingly inefficient, structure had acquired legs, claws, teeth and all the other anatomical features vertebrates had acquired on Earth. Thousands of species had acquired eyes that looked out of big eyeholes in the front of the shell, without developing a separate skull. Two large families had developed "turrets" that housed their eyes and their other sense organs but they had kept their brains securely housed in the original shell, in a special chamber just under the turret.

On Earth, the shell structure would have produced organisms that might have collapsed from their own weight. On this planet, with its weaker gravitational field, the shells could be thin and even airy. They reminded Morgan of building components that had been formed from solidified foam-- a common structural technique in space habitats.

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For Ari, the discovery was the high point of his lifespan-- a development that had to be communicated to the Solar System at once. Ari's face had been contorted with excitement when he had called Morgan an hour after the machines reported the first find.

"We've done it, Morgan," Ari proclaimed. "We've justified our whole voyage. Three thousand useless, obsolete people have made a discovery that's going to transform the whole outlook in the Solar System."

Morgan had already been pondering a screen that displayed a triangular diagram. The point at the bottom of the triangle represented the Solar System. The two points at the top represented 82 Eridani and Rho Eridani. The Island of Adventure and the Green Voyager had been creeping up the long sides of the

triangle. The Green Voyager was now about three light years from Rho-- thirty-three years travel time.

Morgan transferred the diagram to Ari's screen and pointed out the implications. If the Island of Adventure transmitted an announcement to the Solar System, the Green Voyager would pick it up in approximately seven years. If the people on the Voyager thought it was interesting, they could change course and reach 82 Eridani only twelve and a half decades after they intercepted the message.

"That gives us over one hundred and thirty years to explore the planet," Ari argued. "By that time we'll have learned everything important the fossils have to offer. We'll have done all the real work. We'll be ready to move on. And look for a world where we can communicate with a living Consciousness."

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Unfortunately, the situation didn't look that straightforward to the rest of the community. To them, a hundred and thirty years was a finite, envisionable time period.

There was, after all, a third possibility-- as Miniruta Coboloji pointed out in one of her contributions to the electronic debate. The Green Voyager may never come this way at all, Miniruta argued. They may reach Rho thirty-three years from now, pass through the system, and point themselves at one of the stars that lies further out. They've got three choices within fourteen light years. Why can't we just wait the thirty-three years? And send a message after they've committed themselves to some other star system?

For Ari, that was unthinkable. Our announcement is going to take twenty years to reach the Solar System no matter what we do. If we sit here for thirty-three years before we transmit, it will be fifty-three years before anyone in the Solar System hears about one of the most important discoveries in history. We all know what's happening in the Solar System. Fifty-three years from now there may not be anyone left who cares.

Once again Morgan labored over his screens. Once again, he recruited aides who helped him guide the decision making process. This time he engineered a compromise. They would send a brief message saying they had "found evidence of extinct life" and continue studying the planet's fossils. Once every year, they would formally reopen the discussion for three tendays. They would transmit a complete announcement "whenever it becomes clear the consensus supports such an action."

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Ari accepted the compromise in good grace. He had looked at the numbers, too. Most of the people on the ship still belonged to his communion.

"They know what their responsibilities are," Ari insisted. "Right now this is all new, Morgan. We've just getting used to the idea that we're looking at a complete planetary biota. A year from now-- two years from now-- we'll have so much information in our databanks they'll know we'd be committing a criminal act if we didn't send every bit of it back to the Solar System."

* * * *

It was Ari who convinced them the planet should be called Athene. Athene had been a symbol of wisdom and culture, Ari pointed out, but she had been a war goddess, too. And didn't the world they were naming bear a distinct resemblance to the planet the ancient humans had named after their male war figure?

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The information pouring into the databanks could be examined by anyone on the ship. In theory, anyone could give the exploration machines orders. In practice, the exploration of the Athenian fossil record soon came under the control of three people: Ari, Morgan-- and Miniruta Coboloji.

Morgan had been watching Miniruta's development ever since he had lured her away from the Eight. Physically, she was a standard variation on the BR-V73 line-- the long, willowy female body type that had been the height of fashion in the lunar cities in the 2130's. Her slim, beautifully crafted fingers could mold a sculpture-- or shape a note on a string instrument-- with the precision of a laser pointer.

It was a physical style that Morgan found aesthetically appealing but there were at least two hundred women on the ship who had been shaped by the same gene cluster. So why was Miniruta the only BR-V73 who crept into his thoughts during the more stressful hours of his celibate intervals? Was it because there was something desperate about the need for affiliation he had uncovered in her personality profile? Did that emotional vulnerability touch something in his own personality?

Miniruta's affiliation with the Doctrine of the Cosmic Enterprise had lasted four decades. Ari claimed her switch to the EruLabi worldview had been totally unexpected. Ari had gone to sleep assuming she was one of his most ardent colleagues and awakened to discover she had sent him a long message explaining the reasons for her conversion and urging him to join her.

During the decades in which she had been a member of Ari's communion, Miniruta had followed Ari's lead and equipped herself with every pharmaceutical and electronic enhancer she could link to her physiology. The electronic enhancers had all been discarded a few tendays after she had joined the EruLabi. Her pharmaceutical enhancers had been dispensed with, item by item, as she had worked her way up the EruLabi protocols. She had been the second EruLabi on the ship who had made it to the fourth protocol and accepted its absolute prohibition of all non-genetic mental and physiological enhancers.

Morgan could now talk to her without struggling. His own pharmaceutical enhancers erased most of the intellectual gap that separated two people who had been brought into the universe twenty years apart. He had been surprised when he had discovered Miniruta was spending two thirds of every daycycle with the data from the fossil hunt, but he had soon realized she had a philosophical agenda.

To Miniruta, the course of evolution on Athene proved that evolution was a random process. "Ari's right, Morgan," Miniruta said. "This planet can teach us something we need to understand. But it's not the lesson Ari thinks it is. It's telling us there isn't any plan. There's no big overall objective-- as if the universe is some kind of cosmic totalitarian state. The only reality is individuals. And their needs."

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To Ari, the critical question was the evolution of intelligence. Obviously, life had died out on Athene before intelligent creatures could build cities or turn meadows into farms. But wasn't there some chance something like the first proto-humans had evolved? If that first glimmer of tool making, culture creating intelligence had appeared on the planet, wouldn't it prove that evolution really did lead in a particular direction?

"I'll grant you the vertebrates were obviously an accident," Ari said. "But you can still see an obvious increase in intelligence if you look at the progressions we've been uncovering. You can't go from stationary sea creatures to land creatures that were obviously highly mobile without a lot of development in the brain. Intelligence is the inevitable winner in the selection process. The life forms that can think better will always replace the life forms with less complex nervous systems."

"The way human beings replaced the cockroach?" Miniruta asked. "And the

oyster?"

Miniruta was speaking VA13. The lilt in her voice expressed a casual mockery that Morgan would have found devastating if she had directed it at him.

"We were not in direct genetic competition with the cockroach and the oyster," Ari said in Tych. "The observable fact that certain lines remained static for hundreds of millions of years doesn't contradict the observable fact that natural selection tends to produce creatures with more highly developed brains. We could have destroyed every species on the Earth if we had wanted to. We let them live because we needed a complex biosphere. They survived because they satisfied one of our needs."

* * * *

To Morgan, most of the information they were gathering proved that natural selection really was the powerful force the theorists had claimed it was.

Certain basic patterns had been repeated on both planets. Life forms that had been exceptionally massive had possessed jaw structures that indicated they had probably been herbivores-- just as terrestrial herbivores such as the elephant had been the largest organisms in their habitats. Life forms that had possessed stabbing teeth and bone crunching jaws tended to be medium sized and looked like they had probably been more agile.

But the process obviously had its random qualities, too. Was it just a matter of random chance that the vertebrates had failed to develop? Had the shell creatures dominated the planet merely because certain molecules had fallen into one type of pattern on Earth and another pattern on Athene? Or had it happened because there was some difference in the conditions life had encountered on the two planets?

To Morgan, it didn't matter what the answer was. Evolution might proceed according to laws that were as rigid as the basic laws of physics, or it might be as random as a perfect game of chance. He would be happy with either answer. He could even be content with no answer.

That was one of the things people never seemed to understand about science. As far as Morgan was concerned, you didn't study the universe because you wanted to know the answers. You studied it to connect. When you subjected an important question to a rigorous examination-- collecting every scrap of evidence you could find, measuring and analyzing everything that could be measured and analyzed-- you were linked to the universe in a way nothing else could connect you.

Religious mystics had once spent their lives trying to establish a direct contact with their version of God. Morgan was a mystic who tried to stay in contact with the cosmos.

* * * *

Ari had assigned three groups of exploration machines to a hunt for camp sites. The teams concentrated on depressions that looked like they had once been rivers and probed for evidence such as stone tools and places where a large number of animal fossils had been concentrated in a small area. They found two animal deposits within their first three tendays and Ari quickly pointed out that the animals had clearly been disassembled.

"These aren't just tar pits or places where a catastrophe killed several animals accidentally," Ari argued. "Note how the remains of the different species are all jumbled up. If they had been killed by a rockslide from the surrounding heights-- to name just one alternate possibility-- the remains of each animal would have tended to stay together. The pattern we're looking at here is the pattern we'd expect to see in a waste pit."

Miniruta tossed her head. "If they were butchered," she said in VA13, "then somebody had to use tools to cut them up. Show us a flint tool, Ari."

Show us some evidence of fire."

* * * *

Machines burrowed and probed in the areas around the "waste pits". Scraping attachments removed the dirt and rock one thin layer at a time. Raking attachments sieved the dust and rubble. Search programs analyzed the images transmitted by the onsite cameras and highlighted anything that met the criteria Ari had stored in the databanks. And they did, in fact, find slivers of flint that could have been knives or spearheads.

Ari had two of the flints laid out on a tray, with a camera poised an arm length above the objects, and displayed them on one of the wall screens in his apartment. Morgan stared at the tray in silence and let himself surrender to all the eerie, haunting emotions it aroused, even with Ari babbling beside him.

"On Earth," Miniruta pointed out, "we already knew the planet had produced intelligent life. We could assume specimens like that had been made by intelligent beings because we already knew the intelligent beings existed. But what do we have here, Ari? Can we really believe these objects were shaped by intelligent beings when we still haven't seen anything that resembles hands? So far, you haven't even located an organism that had arms."

* * * *

There were other possibilities, of course. Ari had studied most of the ideas about possible alien life forms that humans had come up with in the last few centuries and installed them in the databanks housed in his electronic enhancers. He could produce several plausible examples of grasping organs composed of soft tissue that would only fossilize under rare, limited conditions. The tool makers could have possessed tentacles. They could have used some odd development of their lips.

Miniruta tipped back her head and raised her eyebrows when she heard Ari mention tentacles. The high pitched lilt of her VA13 communicated-- once again-- the condescension that permeated her attitude toward Ari.

"The cephalopods all lived in the sea, Ari. Our arms evolved from load bearing legs. I admit we're discussing creatures who evolved in a lower gravity field. But they weren't operating in zero gravity."

"I've thought about that," Ari said. "Isn't it possible some tentacled sea-creatures could have adapted an amphibious lifestyle on the edge of the sea and eventually produced descendants who substituted legs for some of their tentacles? On our own planet, after all, some of the land dwellers who lived on the edge of Earth's oceans eventually produced descendants whose legs had been transformed into fins. With all due respect to your current belief system, Miniruta-- our discussions would be significantly more succinct if you weren't trying to discuss serious issues without the benefit of a few well chosen enhancements. You might see some of the possibilities I'm seeing before I have to describe them to you."

* * * *

As an adherent of the fourth EruLabi protocol, Miniruta only rejected permanent enhancements that increased her intellectual and physical powers. Temporary enhancements that increased pleasure were another matter. Miniruta could still use a small selection of the sexually enhancing drugs developed in the 21st Century, in addition to the wines, teas, and inhalants that had fostered pre-pharmaceutical social relations. She and Morgan had already shared several long, elaborately choreographed sexual interludes. They had bathed. They had banqueted. They had reclined on carefully proportioned couches, naked bodies touching, while musicians from a dozen eras had materialized in Miniruta's simulators. The EruLabi sexual rituals had cast a

steady, sensuous glow over the entire six decades Morgan had spent with Savela Insdotter. He had resumed their routines as if he had been slipping on clothes that were associated with some of the best moments of his life.

They were nearing the end of a particularly satisfactory interlude when Miniruta switched on her information system and discovered she had received a please-view-first message from Ari. "I've been looking over some of the latest finds from one of your random-survey teams," Ari said. "Your idea paid off. They've handed us a fossil that looks like it left traces of soft bodied tissue in the rocks in front of it-- imprints that look like they could have been made by the local equivalent of tentacles. Your team found it in the middle of a depression in that flat area on the top of the main southern plateau-- a depression that's so shallow I hadn't even noticed it on the maps."

Miniruta had decided that half her exploration machines would make random searches. Ari and Morgan were both working with intellectual frameworks based on the history of Earth, Miniruta had argued. Morgan was looking at the kind of sites that had produced fossils on Earth. Ari was looking for traces of hunter-gatherers. "A random process," she had pronounced, "should be studied by random probing."

Now her own philosophical bias had apparently given Ari what he had been looking for. Ari would never have ordered one of his machines into the winding, almost invisible depression Miniruta's machine had followed. But that dip in the landscape had once been a river. And the river had widened its path and eroded the ground above a fossil which had formed in the sediment by the bank.

It was a cracked, fragmented shell about a third the length of a human being. Only one side of it had been preserved. But you could still see that it was essentially a tube with a large opening at one end, a smaller opening at the other, and no indications it had openings for legs. In the rock in front of the large opening, Morgan could just make out the outlines of impressions that could have been produced by a group of ropy, softbodied extensions.

Ari highlighted three spots on the rim of the large opening. "Notice how the opening has indentations on the rim, where the extensions leave it. They aren't very big, but they obviously give the extensions a little more room. I've ordered a search of the databank to see how many other shells have indentations like that. If there was one creature like this on the planet, there should have been other species built along the same pattern. I'm also taking another look at all the shells like this we've uncovered in the past. My first pass through the databank indicates we've found several of them near the places where we found the burial pits."

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For Ari, the find proved that it was time to let the Solar System know the full truth. He posted a picture of the fossil on the information system an hour after he had notified Morgan and Miniruta. "We now have evidence that creatures with fully developed grasping organs existed on this planet," Ari argued. "The evidence may not be conclusive, but it can't be dismissed either. The people of the Solar System have a right to draw their own conclusions. Let them see the evidence we've collected. Let the minority who are resisting stagnation and decline derive hope from the knowledge more evidence may follow."

It had only been eight tendays since Ari had agreed to the compromise Morgan had worked out. Yet he was already demanding that they cancel the agreement.

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To Miniruta, the idea was absurd. Ari was suggesting that the forests of Athene had harbored tentacled creatures who had hung from trees and occupied

the ecological niches monkeys had appropriated on Earth. And he was jumping from that improbability to the idea that some of these hypothetical creatures had developed weapons and become hunter-gatherers.

"I am not saying anything is true," Ari insisted. "I am merely noting that we now have pits full of butchered animals, tools that could have butchered them, and a type of organism that could have manipulated the tools."

Ari had even developed a scenario that equipped his fantasy creatures with the ability to move along the ground at a pace suitable for hunters. Suppose, he argued, they had begun their advance to intelligence by learning to control some type of riding animal?

To Ari, his proposal was a logical variation on the process that had shaped human intelligence. On Earth, tree dwellers had developed hands that could grasp limbs and brains that could judge distances and trajectories. Then they had adapted the upright posture and used their hands to create stone tools. Tool use had created a way of life that put a premium on intelligence, the individuals with the best brains had tended to be the survivors, and a creature who could build starships had taken its place in the universe.

"On Athene," Ari argued, "the drive toward intelligence may have followed a different course. The tree-dwellers couldn't develop upright walking so they began by controlling animals. They became mounted hunters-- creatures who could rove like ground animals and manipulate the same simple tools our own ancestors chipped from the rocks. The evolutionary process may take many twists. It may be bloody and cruel. But in the end, it gives us planets populated by creatures who are intelligent and conscious. The arrow points in only one direction."

* * * *

Thirty years from now-- perhaps even ten years from now-- Morgan's feelings about Miniruta would just be a memory. Morgan knew that. There would come a moment when he would wonder how he could have believed all his pleasure in life depended on the goodwill of another human being. But right now he just knew he wanted to create a crowded memory. Right now he felt as if he had spent the last few decades in a state of half-dead numbness.

He had started playing with his political analysis programs as soon as he had realized Ari was initiating a new round of agitated debate. The situation had looked dangerous to him and the picture that had emerged on his screens had confirmed his intuitive judgment. About twenty-five percent of the people on the ship believed a report on the new find should be transmitted to the Solar System. Almost thirty percent registered strong opposition. The rest of the population seemed to be equally divided between not-convinced-we-should and not-convinced-we-shouldn't.

If Ari's first appeals had attracted a solid forty or forty-five percent, Morgan would have given him some extra support and helped him win a quick, overwhelming victory. Instead, the Island of Adventure community had stumbled into one of those situations in which a divisive debate could go on indefinitely.

Morgan was savoring teas with Miniruta when he suggested the one option that looked like it might defuse the situation.

"I've decided to assign all my exploration teams to the search for evidence that supports Ari's theories," Morgan said. "I think it would be a wise move if you did the same thing-- for awhile anyway. We're not going to get any peace on this ship until we come up with solid evidence Ari's right. Or make it clear we probably never will."

They had both been speaking Plais-- a graceful EruLabi invention that had been designed for the lighter types of social events. Morgan had switched to Jor when he started discussing his proposal and Miniruta transferred to Jor with him.

"You want to divert equipment from all the other research we're doing?" Miniruta said. "As far as I'm concerned, Ari has all the resources he needs."

We're producing the first survey of an alien ecosystem. Why should we interrupt that merely because one member of our expedition has become obsessed with a fantasy?"

The vehemence in her voice caught Morgan off guard. He had thought he was offering her a modest, reasonable proposal. He had run the idea through his political simulation programs and the results had indicated most of the people on the ship would approve a transmission to the Solar System if Ari managed to locate more evidence. A minority would never feel happy with the decision-- but at least a decision would have been made.

"It shouldn't divert us for more than a few tendays," Morgan said. "We can intensify Ari's hunt for campsites. We can look for associations between possible mounts and possible riders. We can ignore the low lying areas for the time being and concentrate on the regions that probably stayed above sea level when Athene had seas. If we do all that and don't come up with something decisive in a few tendays-- I think we can assume we'll get a clear consensus that we shouldn't overrule our current agreement and transmit a message before the next discussion period."

"And what if we find the kind of evidence he's looking for? Do you think Madame Dawne will just nod agreeably? And let us do something that could destroy her?"

"If there's evidence out there to be found-- sooner or later we're going to find it. She's going to have to accept that eventually."

Miniruta reached across the tea table and touched his hand. She slipped into Plais just long enough to preface her response with a word that meant something like "pleasure-friend".

"Donilar-- even if the evidence is there, will it really do us any good if we find it? Why should we jeopardize our whole way of life just so Ari can give a dying minority group information that will only prolong its agonies?"

* * * *

Morgan knew he shouldn't have felt like he had just been ambushed. He had been watching Miniruta for over a century. Everything she had done had proved that the profiling program had been correct when it had decided her personality structure was dominated by a deep need for affiliation. When she had been associated with Ari's group, she had maximized her use of enhancements. When she had switched to the other side, she had become a model of EruLabi virtue.

But he was in love. He had surrendered-- willingly, for his own reasons-- to one of the oldest delusions the human species had invented. And because he was in love, he had let himself ignore something that should have been obvious. Miniruta's dispute with Ari wasn't an argument about the nature of the universe. It was an argument about what human beings should believe about the nature of the universe.

The teas were followed by music. The music was followed by a long, dreamlike concentration on the shape and texture of Miniruta's body. And afterward Morgan returned to his apartment and watched his programs churn out scenarios that included a new factor: a woman who believed Ari's worldview was a disease that should be eradicated from human society.

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Morgan's programs couldn't tell him what Miniruta was going to do. No program could predict all the tactical choices a human brain could choose. But the programs could suggest possibilities. And they could estimate the intensity of Miniruta's responses.

He spotted what she was doing hours after she started doing it. Her "randomly searching" machines occupied one of the prime sites on Ari's list and started scraping and digging just a few hours before Ari's own machines were scheduled to work on it.

Ari called Morgan as soon as he finished his first attempt to "reason" with Miniruta. He still thought Miniruta's program had made a random choice. He still believed she was just being obstinate when she refused to let his machines excavate the site.

"She's got some kind of silly idea she has to stick to her ideal of pure randomness," Ari said. "She's trying to tell me she wouldn't be operating randomly if she let her team go somewhere else."

Morgan agreed to act as a go-between and Miniruta gave him the response he had expected. It was just a random event, she insisted. Why should Ari object? Now he could send his machines to one of the other sites on his list.

"It's one of the big possibilities on his current list," Morgan said. "He thinks he should explore it himself."

"Doesn't he think my machines are competent? Is he afraid they'll spend too much time indulging in sensual pleasures?"

"Ari thinks this is a totally accidental occurrence, Miniruta."

She smiled. "And what does my little Donilar think?"

Morgan straightened up and gave her his best imitation of an authority figure. It was the first time she had said something that made him feel she was playing with him.

"I think it would be best if he went on thinking that," he said.

Miniruta's eyes widened. Her right hand fluttered in front of her face, as if she was warding off a blow. "Is that a threat, Donilar? After all we have enjoyed together?"

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Three daycycles later, Miniruta's machines took over two more sites. Morgan's surveillance program advised him as soon as it happened and he immediately called Ari and found himself confronted with a prime display of outrage.

"She's deliberately interfering," Ari shouted. "This can't be random. She is deliberately trying to destroy the last hope of the only people in the Solar System who still have faith in the future. Even you should be able to see that, Morgan-- in spite of your chemical reactions to certain types of female bodies."

It was the kind of situation Morgan normally delegated to one of his political operatives. This time there was no way he could slip away gracefully and let someone else handle it. His studies had taught him what the best responses were. He had even managed to apply them on one or two previous occasions. He let the tirade go on as long as Ari wanted to maintain it. He carefully avoided saying anything that might indicate he was agreeing or disagreeing.

Unfortunately, he was faced with something no one on the ship could have handled. Miniruta had given Ari an opening he had obviously been looking for.

"I agreed to wait until we had a consensus," Ari ranted. "I'm trying to be cooperative. But I think it's time someone reminded your overzealous paramour that there's no practical, physical reason I can't transmit a message to the Solar System any time I want to."

Ari's elongated head could make him look slightly comical when he became overexcited. This time it was a visual reminder of the commitment behind his outbursts.

"If you really want to get this situation calmed down, Morgan-- I suggest you remind her I still have more supporters than she has. They can all look at what she's been doing at the first site. They can all see her machines are carefully avoiding all the best locations and deliberately moving at the slowest pace they can maintain without stalling. You can tell her she has two choices. She can get her machines out of all three sites, or she can put them under my control. And after she's done that-- I'll send her a list of all the other sites I expect her to stay away from."

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Miniruta was standing in the doorway of her ritual chamber. Behind her, Morgan could glimpse the glow of the brass sculpture that dominated the far end. Miniruta had just finished one of the EruLabi rituals that punctuated her daily schedule. She was still wearing the thin, belted robe she wore during most of the rituals.

Only the night before, in this very room, they had huddled together in the most primitive fashion. They had stretched out on the sleeping platform just a few steps to Morgan's left and he had spent the entire night with his arms wrapped around her body while they slept.

"I've discussed the situation with Ari," Morgan said in Tych. "He has indicated he feels your actions have given him the right to transmit a message without authorization. He believes his supporters will approve such an action."

"And he sent you here to relay something that is essentially another threat."

"It is my belief that was his intention."

"You should tell him he'll be making a serious error. You should tell him it's obvious he thinks no one will resist him."

"I believe it would be accurate to say he believes no one will offer him any high level resistance."

"Then you should tell him his assumptions need to be revised. Madame Dawne has already armed herself. I obviously can't tell you more than that. But I can tell you she will fight if Ari tries to take control of the communications module. She is already emotionally committed to fighting."

Miniruta smiled. "Is that an informative response? Will that give Ari some evidence he should modify his assumptions?"

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Morgan returned to his apartment and had his fabrication unit manufacture two sets of unarmed probes. The probes were large, cumbersome devices, about the size of a standard water goblet, but he wasn't interested in secrecy. He deployed both sets by hand, from a maintenance hatch, and monitored them on his notescreen while they tracted across the surface area that surrounded the communications module.

His notescreen accepted a call from Miniruta two minutes after the probes had made their fourth find.

"Please do not interfere, Morgan. Madame Dawne has no quarrel with you."

"I've detected four weapons so far. None of them look to me like items Madame Dawne would have deployed on her own."

"Don't underestimate her, Morgan. She believes Ari is threatening her ability to survive."

"I thought Madame Dawne was a dangerous person when we were coping with the course-change controversy. But that was over ten decades ago. She's only been seen twice in the last eight years. The last time her responses were so stereotyped half the people she talked to thought they were dealing with a simulation. I don't know how much personality she has left at this point-- but I don't think she could surround the communications module with a defense like this unassisted."

"Ari is threatening the fabric of our community. We made an agreement as a community-- a consensus that took every individual's needs into account. Madame Dawne is defending the community against a personality who thinks he can impose his own decisions on it."

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Morgan fed the information from his probes into a wargame template and let the program run for over thirteen minutes. It went through four thousand

simulations altogether-- two thousand games in which Madame Dawne was willing to risk the total annihilation of the ship's community, followed by two thousand possibilities in which she limited herself to ambushes and low-level delaying tactics. Seventy percent of the time, Madame Dawne could keep Ari away from the communications module for periods that ranged from twenty-one daycycles to two hundred daycycles. She couldn't win, but she could force Ari into a sustained struggle.

And that was all she needed to do, according to Morgan's political estimates. Miniruta would gain some extra support if Ari broke the agreement unilaterally. But neither one of them would have a commanding majority when the fighting began. They would start out with a sixty-forty split in Ari's favor and a drawn out battle would have the worst possible effect: it would intensify feelings and move the split closer to fifty-fifty.

Morgan thought he could understand why people like Ari and Miniruta adapted belief systems. But why did they feel they had to annihilate other belief systems? His profiling programs could provide him with precise numerical descriptions of the emotions that drove the people he modeled. No program could make him feel the emotions himself.

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Still, for all his relentless obsession with the Doctrine of the Cosmic Enterprise, Ari was always willing to listen when Morgan showed him the charts and graphs he had generated with his programs. Ari was interested in anything that involved intellectual effort.

"I think we can assume Miniruta isn't going to budge," Morgan reported. "But I have a suggestion you may want to consider."

"I'd be astonished if you didn't," Ari said.

"I think you should send your own machines to the sites she's occupying and have them attempt to carry out your plans. My profiling program indicates there's a high probability she'll attempt to interfere with you. As you can see by the numbers on chart three, the public reaction will probably place you in a much stronger political position if she does."

Ari turned his attention to the chart displayed on the bottom half of his screen and spent a full third of a minute studying it-- a time span that indicated he was checking the logic that connected the figures.

"The numbers are convincing," Ari said in Tych. "But I would appreciate it if you would tell me what your ultimate objective is."

"There's a basic conflict between Miniruta's conduct and the message of the EruLabi creeds. Miniruta can't act the way she's been acting without arousing some hostility in the rest of the EruLabi community."

"And you're hoping she'll alter her behavior when she finds the EruLabi are turning against her. Since she is a personality whose `drive for affiliation' scores in the 99th percentile."

"The EruLabi are not proselytizers," Morgan said in Tych. "Their worldview tends to attract people who avoid controversy and public notice. Many EruLabi are already uncomfortable. If you'll examine Table Six, you'll see the reactions of the EruLabi community already generate an overall minus twenty in their attitude toward Miniruta. Table Seven shows you how much that will increase if they see her actually engaging in some form of active resistance."

"I'm still fully prepared to transmit a message without waiting for authorization, Morgan. I'm willing to try this. But the other option is still open."

"I understand that," Morgan said.

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The biggest exploration machines on the planet were high-wheeled "tractors" that were about the size of the fabrication unit that sat in a

corner of Morgan's apartment and transformed rocks and waste matter into food and other useful items. Ari started-- correctly, in Morgan's opinion-- by landing six machines that were only a third that size. Ari's little group of sand sifters and electronic probing devices started to spread out after their landing and three tractors detached themselves from Miniruta's team and tried to block them. Ari's nimble little machines dodged through the openings between the tractors, more of Miniruta's machines entered the action, and the tractors started colliding with Ari's machines and knocking off wheels and sensors.

Morgan stayed out of the rhetorical duel that erupted as soon as Ari circulated his recording of the robotic fracas. Instead, he focused his attention on the reactions of the EruLabi. Miniruta was defending herself by claiming she was upholding her right to pursue an alternate research pattern. It was a weak line of argument, in Morgan's opinion, and the EruLabi seemed to agree with him. The support she was attracting came from people who had opposed Ari's original request to send a message to the Solar System. Morgan's search programs couldn't find a single comment-- negative or positive-- from anyone who could be identified as an EruLabi.

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Morgan's content analysis programs had been collecting every commentary and attempt at humor that mentioned Miniruta. Over the next few hours he found five items that played on the discrepancy between Miniruta's EruLabi professions and her militant behavior. The one he liked best was a forty second video that showed a woman with a BR-V73 body type reclining in an ornate bath. The woman was bellowing EruLabi slogans at the top of her lungs and manipulating toy war machines while she jabbered about love, sensual pleasure, and the comforts of art and music. A broken tea cup jiggled on the floor beside the tub every time one of her toys fired a laser or launched a missile.

It was a crude effort which had been posted anonymously, with no attempt to circulate it. As far as Morgan could tell, only a couple of hundred people had actually seen it. He shortened it by eighteen seconds, transformed the cackles into deepthroated chuckles, and retouched some of the other details.

Of the other four items, two were genuinely witty, one was clumsy, and one was just badtempered and insulting. He modified all of them in the same way he had modified the video. He slipped them into the message stream at points where he could be confident they would be noticed by key members of the EruLabi communion.

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Fifteen hours after Miniruta had started obstructing Ari's efforts, Savela Insdotter circulated the official EruLabi response. Miniruta Coboloji has been an inspiration to everyone who truly understands the EruLabi creeds, Savela began. Unfortunately, she seems to have let her enthusiasm for our Way lead her into a dangerous course of action. We reached an agreement and Ari Sun-Dalt abided by it, in spite of all his feelings to the contrary.

We have a civilized, rational system for resolving differences. We don't have to tolerate people who refuse to respect our procedures. We still control the communication system. We can still sever

Miniruta's communication links with Athene and her manufacturing facilities on the moon, if we register our will as a community. Isn't it time we got this situation under control?

* * * *

Miniruta's answer appeared on the screens of every EruLabi on the ship. Morgan wasn't included on her distribution list but an EruLabi passed it on to

him. Every word she spoke validated the analysis his program had made all those decades earlier. The tilt of her chin and the tension in her mouth could have been delineated by a simulator working with the program's conclusions.

Morgan watched the statement once, to see what she had said, and never looked at it again. He had watched Miniruta abandon two groups: the original Eight and Ari's most dedicated followers. No group had ever abandoned her.

* * * *

Savela's proposal required a ninety percent vote-- the minimum it took to override the controls built into the information system. Anyone who had watched the ship's political system at work could have predicted Savela was going to collect every yes she needed. The proposal had been attracting votes from the moment people started discussing it-- and no one had voted against it.

Morgan believed he was offering Miniruta the best opportunity he could give her. The EruLabi were not a vindictive people. A few wits had circulated clever barbs, but there was no evidence they were committed to a state of permanent rancor. Most of them would quickly forget her "excessive ardor" once she "manifested a better understanding of our ideals".

Miniruta would re-establish her bonds with the EruLabi communion within a year, two years at the most, Morgan estimated. He would once again recline beside her as they sampled teas and wines together. He would look down on her face as she responded to the long movements of his body. Miniruta was a good EruLabi. It suited her.

He knew he had failed when the vote reached the fifty-five percent mark and Miniruta started denouncing the EruLabi who had refused to support her crusade to rid the universe of "cosmic totalitarianism." The tally had just topped sixty-five percent when Ari advised him Miniruta's robots were vandalizing the sites she had occupied.

* * * *

Fossils were being chipped and defaced. Rocks that might contain fossils were being splintered into slivers and scattered across the landscape. Five of the best sites were being systematically destroyed.

The carnage would end as soon as they cut Miniruta's communications link to the planet. But in the meantime she would destroy evidence that had survived two billion years.

Ari already had machines of his own at two of the sites Miniruta was razing. He had transmitted new orders to the entire group and they had immediately started ramming and blocking Miniruta's machines. The rest of his machines were scattered over the planet.

They had only built three vehicles that could pick up a group of exploration machines and haul it to another point on the planet. Most of the machines on the planet had been planted on their work sites when they had made their initial trip from the moon.

Morgan ran the situation through a wargame template and considered the results. As usual, the tactical situation could be reduced to a problem in the allocation of resources. They could scatter their forces among all five sites or they could concentrate on three. Scattering was the best option if they thought the struggle would only last a few hours. Concentration was the best option if they thought it might last longer.

"Give me some priorities," Morgan said. "Which sites are most important?"

"They're all important," Ari said. "Who knows what's there? She could be destroying something critical at every site she's spoiling."

Morgan gave his system an order and the three transport vehicles initiated a lifting program that would place defensive forces on all five sites. The vote on Savela's proposal had already reached the seventy percent mark. How long could it be before it hit ninety and Miniruta lost control of

her equipment?

Most of the exploration machines were weak devices. They removed dirt by the spoonful. They cataloged the position of every pebble they disturbed. If the vote reached cutoff within two or three hours, Morgan's scattered defensive forces could save over eighty-five percent of all five sites.

* * * *

Short range laser beams burned out sensors. Mechanical arms pounded sensitive arrays. Vehicles wheeled and charged through a thin, low-gravity fog of dust. Morgan found himself reliving emotions he hadn't felt since his postnatal development program had given him simple mechanical toys during the first years of his childhood.

For the first ninety minutes it was almost fun. Then he realized the vote had been stuck at seventy-eight percent for at least fifteen minutes. A moment later it dropped back to seventy-six.

He switched his attention to his political analysis program and realized Miniruta had made an important shift while he had been playing general. She had stopped fighting a crusade against her philosophical rivals. Now she was defending Madame Dawne "and all the other elders who will have to live with the consequences of Ari's headstrong recklessness if the Green Voyager changes course."

"Apparently she's decided Madame Dawne offers her a more popular cause," Ari said.

Ten minutes after Miniruta issued her speech, Morgan sent five of his machines in pursuit of two of hers. He was watching his little war party drive in for the kill-- confident he had her outmaneuvered-- when he suddenly discovered it had been encircled by an overwhelming force. Five minutes later, the program advised him he was facing a general disaster. The "exchange rate" at all five sites was now running almost two to one in Miniruta's favor. Every time he destroyed five of her machines, she destroyed nine of his.

Ari saw the implications as soon as the numbers appeared on the screen. "She's started feeding herself enhancers," Ari said. "She's abandoning her EruLabi principles."

Morgan turned away from his screens. Memories of music floated across his mind.

He switched to Tych, in the hope its hard, orderly sentences would help him control his feelings. "Miniruta has switched allegiances," he said. "We were incorrect when we assumed her last statement was a tactical move. She has acquired a new allegiance."

"Just like that? Just like she left us?"

"It would be more correct to say she feels the EruLabi left her."

"That isn't what you told me she'd do, Morgan."

"The programs indicated there was a ninety percent probability Miniruta would protect her ties with the EruLabi community."

"And now you're faced with one of the options in the ten percent list instead."

A blank look settled over Ari's face. He tipped back his head and focused his attention on his internal electronics.

"Let me see if I understand the situation," Ari said in Tych. "The struggle can continue almost indefinitely if Miniruta maintains the current exchange rate. She is receiving new machines from her production units on the moon almost as fast as you're destroying them. She can continue damaging all five sites, therefore, until they are all totally demolished."

"We still have options," Morgan said. "My pharmaceuticals include enhancers I still haven't used. Miniruta outmatches me intellectually but she has a weakness. She isn't used to thinking about conflict situations. Miniruta spent the last seven decades advancing through the EruLabi protocols. She has devoted twenty-five percent of her total lifespan to her attempts to master the protocols."

"As for the political situation," Ari droned, "according to your best estimates, approximately eighty percent of the ship's population feel we should send a message to the Solar System if we find conclusive evidence intelligent life evolved on Athene. They may not agree I should send a message now, but they do agree it should be sent if I uncover evidence that can be considered conclusive. Most of the people in the other twenty percent have been willing to submit to the will of the majority, even though they aren't happy with the idea. Now Miniruta is offering the twenty percent a tempting opportunity. They can let her destroy the evidence and avoid a decision indefinitely. They don't even have to vote. They can just abstain and hold the count on the current balloting below ninety percent. Miniruta will maintain control of her machines and the sites will be excised from the scientific record."

Ari lowered his head. "It's my opinion I should initiate one of my alternate options. Miniruta can only operate her machines as long as her apartment is connected to the ship's power supply. We will have to sever three alternate power lines to cut her link with the power system, but I believe it can be done."

Morgan stared at the screen that displayed Ari's face. He started to respond in Tych and discovered he couldn't. Ari had triggered an emotional flood that was so powerful Morgan's brain had automatically shifted to VA13.

Ari raised his hand. "I recognize that the action I'm suggesting has serious implications," Ari said. "I realize it could trigger off long term changes in our communal relationships. I believe Miniruta is committing a crime that ranks with the worst atrocities in history. She is destroying a message that has been waiting for us for over two billion years."

"You're talking about something that could make every passenger on this ship feel they had to arm themselves," Morgan said. "This is the first time I've ever heard anyone even suggest one passenger should attack another passenger's power connection. What kind of a life could we have here if people felt somebody could cut their power connection every time we had a conflict?"

"We are discussing an extreme situation. Miniruta could be pulverizing the only fossils on the planet that could prove Athene generated intelligent life."

Morgan stood up. "It's always an extreme situation. This time it's your extreme situation. Fifty years from now it will be somebody else's. And what do we end up with? A ship full of people forming gangs and alliances so they can protect themselves?"

"Is that all that matters to you, Morgan? Maintaining order in one little rock? Worrying about three thousand people hiding in their own personal caves?"

Morgan knew he was losing control of his impulses. He was behaving exactly the way his personality profile predicted he would behave. But he couldn't help himself. He was staring at someone who was unshakably convinced they were right and he was wrong. Ari could have withstood every technique of persuasion stored in the ship's databanks. What difference did it make what he said?

"It's the rock I live in! It's the rock you live in!"

Ari switched to VA13-- a language he rarely used. The musical pattern he adapted colored his words with a flare of trumpets.

"I live in the galaxy," Ari said. "My primary responsibility is the intellectual evolution of my species."

* * * *

Miniruta-- Ari is going to cut the power lines to your apartment. This is not a ruse. It's not a threat. I'm warning you because I think he's doing something that could have a disastrous effect on the long range welfare of the ship's community-- a precedent that could make the ship unlivable. You've still got time if you move now. Put on your emergency suit. Get in your escape

tunnel and go all the way to the surface before he puts a guard on the surface hatch. If you start now, you could make it all the way to the communications module while he's still getting organized.

* * * *

Morgan's forces attacked Miniruta's production facilities on the moon two hours after she received his warning. Her security system put up a fight, but it was overwhelmed within an hour. Every fabrication unit in her factories was brought to a halt. The rail launcher that propelled her machines toward Athene was dismantled at three different points.

Morgan had selected the most powerful intellectual enhancer his physiology could absorb. He would be disoriented for almost five daycycles after he stopped using it. He was still intellectually inferior to Miniruta, but he had just proved he had been right when he had claimed she wasn't used to thinking about conflict situations. He had taken her by surprise because she hadn't realized he had reprogrammed his lunar fabrication units and created a force that could break through her defenses.

This was the first time he had used this enhancer while he was struggling with a real-time, real-world challenge. He turned his attention to the action on the surface of Athene as if he was training a massive weapon on a target.

Miniruta's forces were still destroying his machines faster than he was destroying hers. She had spent a full hour working her way across the surface of the ship to the communications module and she had managed to maintain the exchange rate all the time she had been doing it. On the site closest to Athene's equator, she had taken complete control of the situation. Morgan's machines had been backed against a cliff and most of Miniruta's machines were churning up the ground and lasering potential fossil beds without resistance.

Morgan had eliminated Miniruta's source of reinforcements when he had destroyed her facilities on the moon. His own fabrication units were still turning out a steady stream of reinforcements and launching them at the planet. Sooner or later Miniruta's machines would be wiped out. Sooner or later he would be replacing his machines faster than she destroyed them. But the trip from the moon to Athene took over twenty hours. It would be almost forty hours, the charts on his screens claimed, before he destroyed Miniruta's last machine.

His brain skimmed through the plans for the vehicles that ferried equipment between the moon and the planet. Numbers and equations danced across his consciousness: payloads, production times, the weight of the reaction mass a transport vehicle forced through its engines when it braked to a landing on Athene. His fabrication units on the moon received a new set of orders and started producing transport vehicles that would make the trip in nine hours. The vehicles would carry fifty percent more reaction mass, so they could kill the extra velocity. Payload would be reduced by thirty percent.

* * * *

"Somebody told her we were going to attack her power lines. She climbed out her surface escape hatch minutes before we put a guard on it. We didn't even know she'd left until she started controlling her machines from the communications module."

Ari had been speaking VA13 when he had deposited the message in Morgan's files. He had obviously wanted to make sure Morgan understood his feelings.

"There's only one person on this ship who could have warned her in time, Morgan. No one in my communion would have done such a thing. Now she's sitting in the communications module, wrecking and smashing some of the most precious information the human race has ever uncovered. And we're battering our skulls into pulp trying to break through all the weapons her friend Madame Dawne deployed around the communications module."

Morgan put his machines into a defensive posture on all five sites and

held them on the defensive while he waited for reinforcements. Every now and then, when he saw an opportunity, he launched a hit-and-run attack and tried to catch one of her machines by surprise.

Ari was right, of course. The destruction Morgan was watching on his screens was one of the great criminal acts of history. Most of the fossils that had filled in the story of human evolution had come from a small area of Earth. The sites Miniruta was destroying had been selected because they met all the parameters entered into the search program. Would there be important, unfillable gaps in the record when they had explored the entire planet? Would her spree of destruction leave them with questions that could never be answered?

* * * *

Morgan switched to the offensive as soon as the first reinforcements arrived from the moon. He picked the site where Miniruta was weakest and eliminated every machine she controlled within two hours. Then he picked her second weakest site and began working on it.

He could feel the full power of Miniruta's mind every step of the way. He was making maximum use of all the help his wargaming programs could give him but he couldn't reduce the exchange ratio by a single percentage point. He was only going to defeat her because she was manipulating a finite force and he could draw on an infinite supply of reinforcements. Whatever he did, she still destroyed nine of his machines every time he destroyed five of hers.

At any given moment, furthermore, only about half her machines were actually fighting his. The rest of them were busily maximizing the destruction she was causing.

* * * *

"We've lost at least thirty percent of the information we could have pulled from each site," Ari said. "On site four, we probably lost over sixty percent."

Morgan was lying on a couch, with a screen propped on his stomach. The recording of Ari's face seemed to be shimmering at the end of a long tunnel. The medical system had advised him it might be most of a tenday before he recovered from the combined effects of sleeplessness, emotional stress, and ultra-enhancement.

"I could have cut off her power within three or four hours if you hadn't interfered," Ari said. "It took you eleven hours to destroy her vehicles-- eleven hours-- even after you started getting extra reinforcements from the moon."

For the third time in less than a daycycle, Morgan was being given a rare chance to hear Ari speak VA13. This time Ari was applying the full force of a module that communicated graduated degrees of revulsion.

* * * *

Morgan had made no recordings of his private moments with Miniruta. The EruLabi didn't do that. Pleasure should be experienced only in memory or in the reality of the present, the EruLabi mentors had proclaimed. There was a long period-- it lasted over two years-- when Morgan spent several hours of every daycycle watching recordings of Miniruta's public appearances.

Savela could have helped him. He could imagine circumstances in which Savela would have offered him a temporary bonding that would have freed him from an emotion that seemed to blunt all his other feelings. Savela was no longer friendly, however. Savela might be an EruLabi but she shared Ari's opinion of his behavior.

Morgan believed he had averted the complete political breakdown of the ship's community. But how could you prove you had avoided something that never

happened? People didn't see the big disaster that hadn't taken place. They only saw the small disaster you had created when you were trying to avert the big disaster. Out of the three thousand people on the ship, at least a thousand had decided they would be happier without his company.

Once, just to see if it would have any effect on his feelings, Morgan struck up a relationship with a woman with a BR-V73 body type. The woman was even an EruLabi. She had never advanced beyond the second protocol but that should have been a minor matter. Her body felt like Miniruta's when he touched it. The same expressions crossed her face when they practiced the EruLabi sexual rituals. There was no way he could have noticed any significant difference when he wrapped himself around her in the darkness.

Ari's sexual enhancement was another possibility. Morgan thought about it many times during the next two decades. He rejected it, each time, because there was no guarantee it would give him what he needed. The enhancement only affected the most basic aspect of sexual desire-- the drive for simple physical release. It didn't erase memories that included all the hours that had preceded-- and followed-- the actual moments when their bodies had been joined.

He had made eight attempts to contact Miniruta during the three years that had followed their miniature war. His programs still monitored the information system for any indication she was communicating with anyone. A style analysis program occasionally detected a message Miniruta could have created under a pseudonym. Every example it found had been traced to a specific, identifiable source. None of the authors had been Miniruta.

He had sent two queries to Madame Dawne. The second time, she had appeared on his screen with hair that was so short and so red she looked like someone had daubed her skull with paint. The language she had used had been obsolete when the Island of Adventure had left the Solar System.

"Please do not think I am indifferent to your concern," Madame Dawne had said. "I believe I can inform you-- with no likelihood of exaggeration or inaccuracy-- that Miniruta finds your anxieties heartwarming. Please accept my unqualified assurance that you can turn your attention to other matters. Miniruta is a happy woman. We are both happy women."

Morgan had deleted the recording from his files two tendays after he received it. He had given his profiling program a description of Miniruta's latest transformation. Miniruta had changed her allegiance three times in the last one hundred and fifteen years. There was a possibility her affiliations were episodes in an endless cycle of unions and ruptures, driven by a need that could never be permanently satisfied. The program couldn't calculate a probability. But it was a common pattern.

In the meantime, he still had his researches. He had picked out three evolutionary lines that looked interesting. One line had apparently filled the same ecological niche the pig family had exploited on Earth. The others raised questions about the way predators and prey interacted over the millennia.

They were good subjects. They would keep him occupied for decades. He had now lived over three hundred years. Nothing lasted forever. He had his whole life ahead of him.