

From the Hands of Hostile Gods

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Undedicated

1.

The fine red sand of Archae Stoddard sparkled in the setting of the crimson sun, Brahma Nova. As the ground temperatures cooled, the storms rolled in like a smothering purple curtain. Tumbling supercells thundered high in the stratosphere dropping rope tornadoes from their bruised and swollen underbellies. The swirling vortices slashed up and down the visible horizon, pulverizing rock and shifting dunes, rewriting the face of the planet's monochromatic topography, inscribing geographic glyphs read only by satellites and gods.

It was winter; there were storms. No one bothered to notice the expected things. The incidental meteorological status panels on the wall of the observation deck were all green, five by five, and the assortment of technicians and engineers responsible for such things pretended to ignore them. Outside, the wind rose in a tormented shriek, gnawing at the sharp corners of the pressurized Quonset storage sheds, daring to be ignored as well. And it was. Nothing but wind, an incidental byproduct of the real work.

Behind the round portholes of triple sealed plastisheen and half-meter thick military grade radiation shielding, the men who made the storms sat around a portable card table beneath a swaying naked bulb and dealt the deck of Tarot cards around. The bulb swayed not because of shoddy maintenance, atmospheric seepage or blown seals, but because Sievers, tall and blond with his wide smile and milk-fat cheeks, had knocked it with his head on his way to the toilet. No one had bothered to stop it.

It was a peculiar game these men played, the five of them scrummed around a decrepit relic of backyard barbecues and screened porch afternoon teas. It was not poker, not since the last of the legitimate Bicycle cards had been worn to illegibility by countless strokings and dealings and sweaty-palmed handling. Now their money stayed in their pockets, or rather, in their automated deposit accounts back home, each man's bits and bytes and proper digits sitting idle, except for the once a month addition and subtraction of paycheck and mortgage. For more than one of those men, those digits had grown quite large over the years.

There might have been no cards at all if not for convenient timing. If Icky Freeden hadn't suffered the misfortune of a faulty valve on his last full tank of breathable air. He'd choked like a fish for a full ten minutes beyond the reach of help. The crew on the worksite had been low enough themselves that they couldn't spare a piggy back. Those watching from the command deck by live feed hadn't been able to reach him in time with a spare. That had been a critical instance of poor mission planning, the type of incident that could get a military man in charge of logistics busted out of his sergeant's stripes.

Except it was Icky's gig. Icky would have been the equivalent of that sergeant if this was a military operation. Which it wasn't. Instead he had merely been on the duty roster as the lead technical engineer for the lambda phase on 21 October. He had pulled his turn, more or less fairly just like everyone else, and no one

was surprised when his own inattention to the necessary details struck him down. Who alone of the external teams, after all, didn't think to do regular and steady maintenance on his environmental suit? Who among them, it was asked, didn't have the foresight to expect any number of catastrophic eventualities and supplement his environmental suit with at least one emergency bulb in his kit--enough goddamned air to make it back to the mobile transport unit?

Icky, of course, and it was Icky who had paid for it, and in some ways all the better for the rest of them. They didn't have to worry about pulling double duties, covering their own logistical nightmares while repairing the holes in Icky's mission plan in their spare time.

But not just better for that reason. There were the cards, too. The glossy, oversized deck of Tarot cards he'd shuffled at night before sliding off to sleep, playing his stubby reddish fingers over the green and yellow Celtic knot patternings. Dealing them flat in the old gypsy lay, circle cross in the middle, four sisters down the right side. This means this, and that means that, and don't *touch* my goddamned deck or you'll cloud the energy. You'll skew my reading. Fthwap! Fthwap! Fthwap! Laying out his fortune again and again, never less than half a dozen times before bed.

Lots of beautiful women in his future, Icky would tell them. Blondes and brunettes, and once even a pair of redheaded twins--at the same time, he crowed. One to suck me and one to fuck me. Maybe even sisters.

The cards hadn't said anything about his critical mission failure, though they all knew that a Death card rattled around in that and any Tarot deck. If he'd gotten it, he wouldn't have told them anyway.

Once Icky was dead, his brain starved and vitals certifiably flatlined, his stiffening corpse shunted off to the equipment shed with the broken augers and sand torn filters, they'd forgotten about the cards. Totally disremembered them for nearly a month, limping along with the last wrecked deck of diamonds, hearts and black, black spades until everyone knew when Jervis had the queen of hearts, and not just because his eyes lit up like rock candy, but because of the fold in the lower left corner. The three of clubs was little more than a blank plastic chit from overuse, but it could be recognized from the distinctive water ring where Ilam had set his drink down on it and forgotten until it was too late to salvage the face. They'd played with it anyway, pretending not to see when

someone else had it.

Then, inevitably, the arguments had come and one raucous brouhaha with actual fisticuffs and a broken mirror from where Sievers had pitched the small but wiry Tappen over the makeshift bar, feet in the air, arms flailing and smack into the wall. Tappen had been cheating, no one denied it, blocking Sievers run at a legitimate royal flush, a once in a lifetime hand for as bad a player as Sievers, by keeping his eyes on the folded-skirt queen and the matching jack with the bite mark on it.

There'd been no cards after work for a pair of grumpy weeks following. Tappen wouldn't have been able to play with his busted hand anyway. But cards were out, that much was obvious. You couldn't help but cheat. It was like playing the game with the cards face out.

Then the year-freighter had shot them an arrival message, and while they cleaned out the storage lockers and pantries, packaged their trash and clothing grubby beyond washing for the re-set, re-stock and eval, someone had remembered Icky. Ostensibly, recalled him in order to get his shrunken monkey's carcass out of the equipment shed and on its way to the proper ceremonial internment, but when they remembered Icky at all, they remembered the *fthwap* of oversized cards.

Sure, the freighter might have a deck or two to spare or loan or outright steal, but the freighter was two weeks out, easy. And two more weeks of the same numbing storm watching and decade old ether porn would have sent more than one of them climbing the walls. Climbing the goddamned walls and likely as not stringing more than one noose from the ceiling fixtures. There was nothing else to do.

Without regret, they lifted the cards from the bedside table where Icky had left them that last night or last morning before his death. There was more than a little pleasure in the first snap and shuffle of the Tarot, though it took even Sievers's monstrous hands a time or two to get used to them. Over and over, separate and integrate. A mad, pauseless slap of laminated paper. No one did a bridge because they all knew that bent the cards.

A fresh brace of cards did not supply an immediate end to the difficulties. Foremost was the issue of which cards to keep and which to lose. Icky's Tarot deck was seventy-eight cards. That was twenty six too many. The logical

solution would have been to toss the whole of the major arcana. Fool to Universe to Fool, that was twenty two, no matter how you counted--a good start. Not to mention, the little paper foldout booklet Icky kept in the box beside the cards themselves had flat out said that the modern deck of playing cards had its origin in the structure of the Tarot's minor arcana. It did not seem to brook much argument.

Except, as Jervis quickly established, it was the major arcana which had most of the pictures of naked women on them. Blondes, brunettes, and even they noted, all and individually with some satisfaction, a pair of redheaded twins.

It didn't take much discussion to reach a consensus. The bastard King of Spades, King of Clubs, King of Fucking Bicycle and his whole court be damned. It was time for a new game.

Ritter designed it. Ritter with his plastisheen-thick glasses and his newborn's baldness, when any self-respecting man his age would have paid for optical implants and microsurgical hair pods. Ritter the Chief Theoretical Xenohydrologist, who spent a full evening culling the digital library for Waite's *Pictorial Key to the Tarot*, stumbling by serendipitous cross-referencing into Regardie's *Middle Pillar*, Fortune and Crowley and a whole host of luminary occultists both profound and obscure. Ritter who spent better than forty-eight straight hours jacked up on artificial stim and coffee and the peculiar non-flammable cigarettes they all despised but treasured more than food and drink and nights of lost partnered sex all put together, until he had a model of the rules and a computerized simulation of fourteen hundred years of constant hand by hand play just to prove his logic. A game, in other words. He designed a game for all seventy-eight cards of the Tarot.

And the tech and engineering corpsmen who played cards, formerly poker, took to it with their quick and nimble and logical minds with an ease that illuminated both Ritter's cunning and their own supple, feverish desperation for entertainment.

With a nod to both their mythic, forgotten forbearers and the present progenitor, they called the game *Yetzirah*.

Creation.

Markus Brett stood at the window as the cards played themselves out in the background, watching the weaving cyclones and listening to the chilly tink of sand pitched against the outside of the station. He was not a particularly large man, but tall, firm and relatively young for the post of Station Commander. His coloring was dark, his hair black but already touched with gray. When he peered out the window into the darkling, bruised evening, the backlit reflection of him was opaque, featureless.

Brett didn't come up here often, raising himself out of the lower admin and lab levels, unless it was to direct a sensitive phase protocol which he felt required his personal attention. He could just as well monitor the status of the topside panels from deeper in the Hole, sitting at his own workstation, or even resting in his bunk for that matter. He could program private alarms to squawk him awake if any of the panels registered anything other than five by five, green across. All of these idiot measures were in place, but he still found the opportunity once or twice a week, relative station time, to trudge up the ladders, peer out the windows, view the storms from behind a comfortable layer of plastisheen, just as he would have at home. There was no sandy ocean view from this window, of course, and the thunderheads brought crashes and groans and splatters of lightning, but not yet any rain. None of those things were like home. But that feeling, warm and sneaky and toe-curling, that sense of safety here in the golden lights of the house, with a mug of coffee in his hand and a mind free of worry despite the howl of the wind--that was familiar. It was a form of remembering that went beyond memory. There was something savage and delightful in it, the quasi-mystical reaction of a jut-jawed brute watching the weather rage from the shelter of a dry cave. A satisfaction that was universal.

It was a long way home from here.

Behind him, Ritter crowed a sound of almost pre-pubescent triumph. Sievers cursed and snatched up the cards with a bear-hug sweep of his arms. Brett sipped his coffee.

"You want us to deal you a hand, Chili?" Ritter called.

He turned toward them, Ritter, Ilam, Sievers and Jervis, then shook his head.

"I'm on the round."

Chili. He hated that name, but couldn't blame them for it, even if it was a tired old joke, one he'd heard since primary school. The soft drink ditty that made it famous. . .*Drink Markus Chili's carbo fun, any day you're in the sun! Try Chili's candy soda treat, that pop gun fizz is oh, so neat!* Horrid stuff, really. Not just the stupendously tooth-ache annoying ad, but the soda itself. It had been gone from the market in less than a year, but as such things do, the commercial had become a sort of icon, some thirties cultural touchstone which wouldn't go away.

"One hand," Jervis said, smiling, already catching up the next deal. "We are in serious need of a change of fortune. Ritter is devouring us."

"What happened to Tappen? Isn't he your usual fifth?"

Ritter cracked his knuckles. "Tappen is on Medical."

Brett stopped. "I think I'd heard that. How's he doing?"

"Doc Liston thinks it might be spinal meningitis," Sievers said. "Could get pretty serious."

Christ, that was all they needed. An outbreak of meningitis. Brett asked, "Is it viral or bacterial? Do you know?"

The four men shrugged, already turning their eyes and their focus to the cards dealt them.

"You sure you don't want to play?" Ilam peered unhappily at his hand. "We can't do any worse."

"I've got a mission eval ether conference in fifteen minutes. Sorry, gentlemen."

Ilam frowned at his cards, chewed the inside of lip. "Rather be wicked than rested, eh?"

The others laughed, and Brett moved away from the window. "If it makes you feel better, you can deal me a dead man's hand, and I'll take my losses in good humor. Hell, deal me in for the rest of the night. Someone ought to be enjoying my life."

He squeezed past the edge of the table, then turned to his left down the brief hall

to the pressure lock. Stooping, he turned the latch on the door, lifted the hatch and set his foot on the top rung of the ladder.

"Seal this port," he said to no one in particular, and predictably, no one answered him.

Brett spoke his voice id command into the portable comm unit and received his confirmation without any of the usual hassles. He found only a dead audio line on the other end. He leaned back in his chair, rubbing at his aching shoulders. The monitor on his desk displayed the rotating Earth Forces Terraform Command insignia, indicating a closed satellite link. The other mission stations were late arriving, or perhaps he was early. Brett looked dubiously at his watch, once synchronized by intermittent radio signal to the atomic clock in Boulder, Colorado. Why couldn't they manage something like that here?

Because we've got enough to keep us busy, that's why.

They were creating a completely habitable planet, all but *ex nihilo*, at least in an atmospheric sense. Trivialities like universal mean times and accurate clocks and reliable timetables could frankly wait for the rush of commuters, homesteaders and interplanetary multi-corporations. For Christ's sake, they were still trying to decide if they were going to settle on the terran definition of *day* which they currently used as relative station time or opt for Archae Stoddard's twenty one and a quarter hour cycle. No one seemed to realize that if the decision wasn't made *by* them, it was going to be made *for* them by the politicians.

The question of time was not what he or any of the eleven other station commanders would have considered mission critical. The engineers would occasionally disagree, Ritter most certainly, but Brett wasn't a sci-tech. He didn't, in fact, give a rat about sci-techs or their concerns as long as they got the work done, kept the satellites humming and the impregnated greenhouse gases churning.

The door buzzed, and Brett straightened in his chair. He glanced at the monitor, but no one had showed any interest in picking up the open line yet.

"Open," he said, and it did.

With a hand on the latch, Djen peeked around the edge of the door as though afraid to find him occupied in something less than tasteful. Djen Riley filled the role of Command Logistics Coordinator. In meaner times, she might have been called his administrative assistant. As he valued his life, Brett never used that term anywhere in her vicinity. She was also an extremely capable and properly degreed Biology Second.

He offered her a smile of greeting and waved her inside. He noticed she had cut her hair again. Djen chose, though there were no regulations to specify such a thing, to wear her golden-red hair in the short-cropped fashion of the station's men. Brett didn't know if it was a testosterone thing with her, and hadn't bothered to ask. Probably never would, though he certainly would have been tempted in another setting, another time and place where things weren't so complicated.

"I have the latest batch of progress reports," she said, returning his smile. "I thought you might need them for your briefing."

"If it comes up. Have you read them?"

"I scanned them as they printed out. They say the same things they've said for the last six weeks. I can instruct Cassandra to mail the digest version to your cycle log if you don't want the long form."

"Don't do that." God knew, as probably did Cassandra, that he already had six months worth of digest version reports unopened and unread in his inbox. He waved a vague hand at the piles of paperwork detritus strewn about his office. "File them on the chair, the one by the lamp. Close to the top."

Djen glanced that way, then pulled her lower lip up between her teeth. "I think that pile lost its battle with the planet's gravitational pull sometime last week. You want me to start a new one?"

He held out his hand. "Give them to me." But as she extended the reports toward him, he shook her off. "Nevermind. Stay here in case I need you to supply details. It most likely won't matter."

He shoved another tottering stack of unbound paper off the chair in the corner behind his desk. The pages fanned out around his feet, spilling in a rough semicircle that ended against his ankle like a wave of spent dominoes.

"Have a seat there."

He meant to say more, to soften the statement so it didn't sound so much like a command, but his speakers emitted a sharp, ear-jangling hiss and the EFTC logo blinked away, replaced by a dull gray screen. Brett stabbed at the volume control, sucking air between his teeth.

"Malibu Station here. Brett, is that you on the line?"

"Persian Site Comm, affirmative. Greetings from the golden beaches, Jack. Where is everybody?"

Jack Overton, mission commander of the duty station almost a thousand kilometers east of Brett's position, laughed at him. It translated as a strange, static and gurgling roar.

"I just got a beam from Com--Site. . .Persia Command? Are you--" Spitfire static and hollow reverberations chewed Overton's message into incoherence. Brett leaned toward the speakers. He smacked one side of the clunky metallic box. It didn't seem to help, so he toggled the transmit switch.

"I'm here, Malibu. Your clarity is terrible, though. Please say again."

The static pop and hiss increased perceptibly, like a rogue breaker dashing itself against the rocks. The ether hummed with a blister of barely audible curses, then cleared again.

"Is that better?" Overton said. "I wrapped my box in fresh aluminum foil."

"You're still fuzzing at the edges."

"Sorry. We've got a big electrical storm over us. Look, I've received a digital beam from Mission Comm HQ. They're calling off the briefing for tonight, probably for the rest of the week, in fact. The atmosphere is too buggy for a good signal. Stoker expects to have the rest of you guys rigged out with the digital receptor arrays by the next freighter pass, but it's old fashioned wave radio until then."

Brett frowned. Malibu was the only station in unit-to-unit range. "Are you getting any video signal?"

"No. That should be fixed with the upgrade. Which reminds me, the Telsat system is going to be down for a few days while the high altitude probes install the rest of the beam devices. Don't expect to get a lot of data in or out of your array. Audio is going to be hit and miss, and video is a total no-go, at least until the storms clear or the digital system is in place."

"Shit."

"Shit, nothing, Chili. I don't know about you, but Malibu is planning to take irresponsible advantage of our present situation. We're going to be shitloose, fancy free and incommunicado until nineteen hundred hours relative time Tuesday. Recommend you and yours do the same. We've earned a little time off. So don't try to call, because daddy won't be picking up the phone."

"But I can reach you on the emergency system."

There was a chuckle, quiet and pleasantly evil. "I'm sorry, Persia Site, I'm having trouble understanding you. I believe I'm losing your signal."

"Jack!"

More laughter, and the signal did actually begin to lose its focus again. "Emergencies only, Chili. Swear on it."

"Emergencies only."

"Malibu Station out."

"Take it easy, Jack." Brett said. He thumbed the comm set off, and rolled his eyes around at Djen. "What a stunning asshole. Though a complete system holiday doesn't sound like a totally irredeemable notion."

"It doesn't sound like a winning one, either."

"We could use a break around here."

She frowned. "You haven't read the progress reports for the last month, Markus. We're falling behind our target percentages. Not just us, mind you, the entire project."

"What are they going to do? Fire us? Send us home? That'd be a real shame, now wouldn't it." But he met her gaze and quirked the corners of his mouth up in a grin that meant surrender. "Fine. I'll keep the lash at their backsides, but we're not going to make much progress if Malibu goes off line. Their production gap in the gas cover is going to suck all our work right out into space, and you know it."

"But at least it won't be our production gap that gets blamed." She winked at him. Careful of her feet, she stood and dropped the sheaf of daily reports on the corner of his desk. "We'll review tomorrow's duty roster later, if that's acceptable to you."

"Much later."

"Twenty one hundred hours. I'll meet you in the arboretum, yes?"

Brett waved her out the door.

She met him with coffee on the sixth sublevel arboretum, an expansive open dome which occupied all but a handful of the floor's volume. Whole packets of lush grasses, wrist-width saplings and flower bushes lined the borders of rubber pallet walkways which wound sometimes functionally, sometimes aesthetically throughout the gardens. Lavender hydroponic lighting systems suspended at regular intervals from the interior of the pressurized plastisheen dome tinged the leaves black on the trees, sketched even the most wan of blossoms in technicolor.

It wasn't Earth, it wasn't even remotely like a real garden, but it grew, and it radiated odors other than hot electrodes, mechanical oil and body sweat. If he kept his eyes carefully averted, Brett could pretend he didn't see the steel ligaments of the level's support beams arching over and above the glass ceiling. He could avoid noticing the faint greenish blats of light suspended along the dome's curving walls mirroring the booths along the perimeter where the biotechs monitored the growth cycles, the ambient air, the photosynthetic reactions which heavily subsidized the station's closed biospheric systems. He could pretend, in other words, that he wasn't loose inside a vapid and nightmarish fraud.

They strolled together into the center of the garden and took their seats on the rough hewn wooden bench set in the spiderweb confluence of the paths. There was a peach tree here, just off to the left, that when the circulator fans chunked to a stop would spread its fine, southern fragrance all around them. Sometimes, he could almost taste their sweetness on the ends of his lips. Taste it and think of ice cream and mint julep tea and the city of Savannah, where he had never lived, but from which had come a pretty southern belle who was soft and pink and round-eyed innocent, and when he was nineteen had sneaked him into her bed, beneath her frill and lace comforter on a cool October evening.

Brett sipped at his coffee. It was hot, and he almost managed to avoid burning his tongue. Djen had changed from her red station suit and into a casual pair of running shorts and a short sleeved cotton shirt. He noticed that she hadn't worn her shoes, and the sight of her small brown toes tensing and relaxing against the rubber matting gave him a sudden surge of pleasure.

He said, "We'll need to adjust engines Two and Four to produce a twenty two percent higher mixture of nitrogen starting tomorrow. The numbers on those two

units are pathetic. I want Nathan and Stivetts working on that project, and I want it done by noon at the very latest."

"You read your report," she said, teasing him.

"The nitrogen conversion seems to be the most critical issue there, though I'm worried about the ammonia experiment we've unleashed with the northern sector machines. Somebody did explain to me that the environment around that cluster would be toxic, right?"

Djen tossed her head back and laughed. "The whole atmosphere is toxic, Markus. And no, they didn't explain it to you, they just told you to do it."

"And why did they do that?"

"Because the ammonia compound is a much more aggressive greenhouse mechanism than the standard chloroflourocarbons we used on Mars in the early fifties. The rate of CFC degradation from ultraviolet contamination bordered on counterproductivity. The engines struggled to maintain even a base level atmospheric stasis because Archae Stoddard doesn't have the gravity well of a Mars for proper containment. Now that we've got the pressure up to 600 millibars, that's not so much of an issue, but we're still thickening toward ten-thirteen. And to do that, we need more raw gaseous material. To do that we need heat, preferably good old fashioned solar energy, which will melt those damned polar caps, releasing their CO₂ deposits. But to do that, we need to maintain current atmospheric density with a greenhouse gas that doesn't evaporate when a UV ray slaps at it.

"Until we can get a consistent and coherent ozone layer manufactured, ammonia lasts longer, it works harder and the molecular restructuring isn't nearly as complex as some of the other gases. Not to mention, when we finally approach the bacterial insertion goal, you'll be sure to notice that most of the anaerobic microorganisms we've brought with us will not only easily, but happily metabolize old NH₃, in the process producing more heat, which leads to all the things mentioned above, and might--just might, mind you--give me a chance to experience Archae Stoddard in just a bathing suit and a rebreather sometime before I die."

"But when it finally starts precipitating, we're going to have nothing but acid rain," he protested. "Polluting the new biosphere prior to even initiating the

anaerobics seems like an even worse counterproductivity."

"Only if we saturate, and we're not even close to that level." Djen winked at him. "I'll give you extra points today for at least making the effort to do your reading."

Brett shrugged, then smiled. "All right. Hey, I read the reports, nobody says I have to understand them."

"As long as one of us does."

"Which is why you're the sci-tech and I'm the admin guy, and consequently why I trust you to tell me what else needs to be done tomorrow."

Djen reached toward the small of her back and produced a small paper notebook from her waistband.

"How did you ever manage to land such a soft job? You have the attention span of a doorknob."

"You'd be surprised what doors a master's degree in systems technology administration and the blind willingness to sign a ten year contract will open for you."

She rifled through the first few pages of her notebook, then stopped. "Engine Three is running hot. It's not a job for one of the techies, but whoever has maintenance duty should take a look at the lubrication levels first, then run a diagnostic on the belts and bearings."

"The programming?"

"Latent production checks out. This strikes me primarily as an exhaust issue. It's an O3 device, and the plumes are reading about eighty meters lower than this time last year. That's still within acceptable parameters, but since we know it's too warm now, I wouldn't want to hold off on it until something breaks."

"So the programming is good?" That was a positive, at least.

"Which brings me to number Nine."

"Would that be Engine, Engine Number Nine?"

Djen blinked at him, uncomprehending.

"It was a song," he said.

"Oh, about Sperling Engines?"

"Locomotive engines. Nevermind. What's wrong with Nine?"

"Nine has encountered a logic error in about half its population. The nanomechs have reverted to last week's production schedule. Last week they were an O2 unit. This week they're supposed to be --oh," She tossed past another two or three pages. "Yes. This week they're four hours nitrogen and nitrogen related compounds, then a whole complex series of xenons, argons and various and sundries in alternating microbatches. The production sequence is extremely complicated and the program timing delicate and precise."

"Which explains the system failure."

She rolled her eyes at him. "Which explains its importance, Markus. This is a stabilizing batch of ingredients. A chemical knot for all that oxygen and ammonia."

"So put Jaekel and Rand on it first thing in the morning."

"They tackled the coding this afternoon, but they've decided it isn't a remote fix. The little bastards are refusing to obey the indirect codes and reverting to the last saved programming. We're going to have to send out an external team."

Brett scratched his chin. This wasn't going to make him popular. "You've seen the weather outside, I assume."

"It's within safety guidelines," she said, but her eyes were dark, thoughtful.

"What are the forecasts for tomorrow?"

"Low pressure system moving in. Lots of wind, but the atmosphere should attain some increasing stability toward evening. Not as many tornadoes."

He grunted. "It only takes one, though God knows the boys back home like them."

Blender of the Gods, he'd heard them called in some near-forgotten and inane teleconference. What would Wagner have called that? *Osterdammerung*? *GotterAmanarung*? Whatever. The argument at that time had been that dynamic atmospheric systems churned the gasses produced by the Sperling engines, and that was considered good by people who knew about such things.

"Who's on deck?"

Djen blanched at the questions, her mouth curling down. "Me. I'll have to assemble a team."

"What about redistributing the work load for the time being?"

"Do you mean mine or the Engine's, Commander?" She lifted an eyebrow. "I would hate to think that you would suggest something both neanderthal and gender stereotyped about the level of risk this job entails."

Brett rubbed his forehead so it wouldn't be obvious that he was looking away. "Of course I meant the machine. Though I'll mention in my defense that the preservation of the health and fitness of the entire station staff--regardless of gender--is one of my published mission imperatives. Number three on the list, if I remember correctly."

His attempt at humor didn't seem to placate her. "With production already so far behind, it's going to hurt just taking the Engine off line for the repairs. If we wait out the storms, we could lose it for days."

"All right. Let it run, then. Half of it *is* working, and half runs are better than none at all."

But she wasn't going to have it. She wasn't going to let him have it. He should have kept his mouth shut. "We don't currently possess the luxury of determining our own production schedule. We need these stabilizing agents, Markus. The project needs them. Every day we wait, slow down, botch our performance levels--those are all days that get tacked onto the end of the contract. We're signed through ecopoiesis if it takes ten years or fifty. I don't know about you, buddy, but I want to get home to all my money and a nice, hard and nubile

young man before I'm too old to enjoy either of them."

Brett sighed. She was right, of course she was right. This shouldn't even be up for discussion. But he had caught himself tasting peaches for just a moment. Peaches and mint and sweet, Georgia girls. Nostalgia could do that, make a man forget where he was and what was expected of him.

"I don't like it," he said finally.

"You don't have to," she said. "You just have to sign the duty roster before you go to bed."

The meeting must have ended on that note, because she bounced to her feet and walked away, leaving Brett alone with the moist, rotten aroma of plants and the hum of the growing lamps.

He sat in the arboretum until it was time for bed, drinking coffee and listening to the silence. Before going to his room, he stopped in at his office to sign the duty roster.

The mail icon was flashing on his monitor.

Chili, it's you and Ritter with two hands to play. You should get up here. Sievers.

For a moment, the message rattled like a marble inside his brain, unmoored and unconnected. Then he remembered.

"What the hell," Brett said, and headed for the game.

2.

The rules of Yetzirah_. A deal of five cards to each hand. Cards can be shuffled, exchanged or drawn from any location within the remaining deck after the deal, though no more than one card may be traded at any time. The player seated to the left of the dealer begins the round, and play proceeds around the table in clockwise fashion. Players can hold no more and no less than five cards in their hand. Discards are removed from play until the displayed deck is gone, then reshuffled and fanned again until a player wins the round and advances to a new sephiroth._

The game board is placed in the center of the table. The pattern is a direct facsimile of the kabbalistic Tree of Life with its ten glowing sephira and sharp angled paths connecting Keter to Hokmah, Binah to Gevurah, down the tree and so on. Inscribed in each circle are the names of the four minor arcana to which it symbolically corresponds. Keter, the four Aces; Tipheret the four Knights or the four Sixes; Netzach the four Sevens. Scratched along each line-pathway between the spheres are the titles of one of the major arcana. Malkhut to Yesod, _Universe; Gevurah to Chesed, Strength; Hokmah to Keter, Fool. The task of each player is to acquire all five cards in a given spread corresponding to a sephiroth and its radiating path from one circle to another._

Play proceeds until a player acquires the necessary cards to move from one sephiroth to any of the other sephiroth to which it is connected by a direct path. Thus, a given round's winning hand might proceed from Malkhut to Hod, by virtue of obtaining the major arcana Judgement and the minor Eights of Staves,

Coins, Wands and Cups. The limited choices available from any point within the game board render the gameplay itself a combination of sheer luck, a modicum of strategic thinking and a careful assessment of those against whom one played. Two players attempting to follow the same path would eliminate one another from contention, assuming each one held a card the other required. Players could only advance to a sephirot connected by a path from their current station.

The Tree can be climbed most directly from Malkhut to Yesod to Tipheret to Keter. In three consecutively dealt hands, this maneuver is called the Perfect Middle Pillar. The more statistically predictable pattern of procession is a serpentine route up and around, horizontal and arcing, even occasionally backward from sephirot to sephirot.

The goal of the game is to be the first to inhabit Keter.

The winner receives the opportunity to draw a final hand, ten cards placed in the traditional Celtic Cross pattern, lately used by Icky and his imaginary sexualized future. In accordance with a carefully cross-indexed sheaf of interpretations culled from more than a dozen texts on the history and understanding of the Tarot archetypes, the winner is allowed to scry the next day's events.

The winner may then choose from a fanned deck one card, and replace any other single card in the spread with the card he has chosen. The revised cards are interpreted again, correlating the newly incorporated element. The winner alone decides the cumulative meaning for the coming day, particulates the results to his satisfaction, and theoretically, dictates the future as it will be written. It is the action of individual will on a set of external constants, a wild and unpredictable element introduced to a predictable and given subset.

This may be considered either a positive or negative element depending upon the surrounding cards.

_Should the winner draw the scrying hand and approve the results as lain, he can choose not to select a final card. This signifies an acceptance of the random elements of fate, the weight of history proceeding unhindered, a nodding in time with what is to be. The card that would have been drawn is never known. _

But if the final replacement card is drawn, it must be played.

The Observation Deck panels flickered various shades of green, spitting shadows against the low metal ceiling. The winds outside Persia Station had fallen to a dull screech, barely audible over the humming electronic life of the boards and monitors piled row on row, bolted precariously to the steel scaffolding which lined the room. Cooling fans breathed the steady exhaust of hot ozone into the air and made the room feel dry and suffocating in its warmth. Sievers was sweating openly, the collar of his shirt stained dark. His palms stained the tabletop where he rested his hands.

Brett wasn't perspiring himself, not yet, though he understood there was probably a good reason for this--he had no idea what was going on. The cards in his hand weren't any sort that he recognized. Swords and long, vinewoven walking sticks and golden round coins with pentagrams drawn on them, and one card that didn't seem to have a suit at all, only the word *Magician* scrawled at the bottom and a black number one in a white, eye-shaped oval at the top. The figure in the middle was that of a robed man, bearded, standing erect behind a tall, cloth-draped table. In his right hand he held a glimmering white candle, pointed flame toward the heavens. The left hand pointed down, toward the earth at his feet.

Brett supposed, but in no way could be sure, that this was good.

Ritter, on the other hand, smiled around the table, benignly confident. Sievers dwarfed his side of the table, his shoulders crammed up around his neck, the muscles wound as tightly as a bulging metal coil. Jervis and Ilam alternated between glowering and petulant. It was really all that Brett needed to know.

He would have done better to let them collectively play out his dead man's hand.

"Have you prepared your stratagem, Commander?" Ritter asked, his voice curiously arched and polite, as though he had just requested permission to launch the sub-light torpedoes or some such thing.

Brett studied his cards, shuffled his stick things together and put the Magician foremost, with the coin and sword randomly after.

With what he hoped was a sufficiently authoritative tone, he said, "Um."

Ilam folded his hand face down on the table. He threw his head back, tossing the

dark mane of his hair, and laughed his deep Irish rumble. "Once more through the ground rules for Chili's benefit, I think."

Ritter's grin showed teeth around the red, saber-curves of his lips. He tapped his pointer finger against the printed computer diagram taped to the center of the tabletop.

"This is the game board," he said. "Ten circles and twenty two lines. Sephirot and the paths between. In the occult tradition, it is a glyph known as the Tree of Life. This dollar coin in Chesed is Sievers. The pen cap in Gevurah is Jervis. Ilam, whom you will note handles his cards and his gamesmanship with such casual regard, can do so because of his bit of scrap way at the bottom in Netzach, just the one hand removed from Malkhut, where play begins."

"I am," Ilam sighed, his pale eyes glinting, "more or less out of contention."

"And I'm the timing chip up near the top?" Brett asked.

Ritter shook his head. "No. You're actually that grubby bit of cloth on the other corner of the triangle, in Binah. The timing circuit is in Hokmah, and that's mine."

Jervis winked at Brett across the table. "That means you're tied for the lead. First one into Keter wins."

Ritter leaned in closer, hunching his torso over the diagram. With his finger, he traced a serpentine path from the bottom to the crown. "You climb the Tree of Life."

"I don't think he understands," Sievers said, exhaling a long jet of nicotine steam.

Brett nodded. ♠ I get that there's some correlation between regular cards and the one's you're using. ♠

♠ Diamonds to Coins, Spades to Staves, Clubs to Wands and Hearts to Cups, yes. ♠ Ritter beamed at him. ♠ Minus the mysterious Knight of the Tarot's court, the minor arcana flows from ace to deuces, an *exact* correspondence. ♠

♠ But what's the correlation between the game board and the cards? Why not just take the fifty two cards in common and play more poker?"

Ritter blinked at him and some of his glow faded, as if the question was nonsensical. He answered slowly, alternating his gaze between the board and Brett.

"In some western magickal traditions, the Tarot as a source of both divination and meditation became inextricably linked with an understanding of the Tree of Life, which is itself a Hebrew artifact. The Jewish mystical tradition held that the creative essence of the Unnameable God, when it flowed outward from beyond the Veils of Negative Existence, emerged as a plastic and liquid energy. Because the God, Yod-Heh-Vav-Heh, whom the Romans unfortunately literated as ❖'Yahweh' or ❖'Jehovah', was pure to the point that any direct contact with a non-divine creation would inevitably shatter the inferior material, He fashioned the Tree of Life as the mechanism for the creation of a physical universe, a firmament, that was from Him, but not of Him.

"The energy of the Godhead flows down from Keter to Binah to Hokmah and on to the bottom until it reaches Malkhut, which represents the universe. Mundane reality. For those who would rise, who would understand the measure of the universe and divinity, the path begins at Malkhut--complete and utter separation from the spiritual--and proceeds via the paths between the sephirot up the diagram until gradually, eventually they merge with Keter, the Crown, the complete understanding of the creative impulse of God.

"Each sephirot has a significance, a meaning which describes a state of spiritual development. Each line between is a path of knowledge, a mechanism for understanding that which is above it. The Tree of Life is about understanding, Commander. It is about the acquisition of knowledge, about what it means to be human, and at the same time, what it means to be a little, flawed piece of the Creator Deity whose presence fulminates beyond the impassable Triple Veils. To see beyond that gulf of unknowability and directly experience godhood is the purpose of the Tree. It is this that Moses requested in the Pentateuch, the chance to glimpse the glorious face of God Himself."

Brett cleared his throat. "The winner gets to see God? That's the point of this game?"

It might be time to take a closer look at these men's psych profiles.

Sievers tittered from his corner, covering his mouth with his hand.

"Metaphorically, only metaphorically," Ritter said, unperturbed. "In creating the game, I sought to stay true to the rich tradition which shrouds the Tarot. We distrust the Tarot as a people, as a species, I think. The Tarot and those things like them. The I Ching, for example. Dice and yarrow stalks and psychics, anything which can be used to divine our possible futures. This is information which we at once covet and feel that we do not deserve. . .or rather, not that we personally do not deserve it, but that others less scrupulous than ourselves don't deserve it because of the ends to which they would direct their knowledge. We want, and we shy away. Better, we say, that we do not know what roams beyond our limited horizons. It is a universal human reaction.

"It is the same as the scientific impulse, is it not? The same dichotomy which has haunted humanity from the first days of the Enlightenment. Newton placed against Dr. Faust. Penicillin weighed against mustard gas. Atomic energy versus atomic weapons. We want progress, those new horizons, an ease to life, but at the same time we fear the cost of that progress, as if there is something a bit naughty in reaching beyond our present grasp.

"Knowledge is what we play for, Commander. Those are the only stakes. Call them small, but it amuses us more than trading bits of credit back and forth between us."

Brett knuckled his brow. "Go on."

"The received kabbalistic tradition regarding the Tree of Life ascribed certain qualities to the sephirot and the paths, certain meanings, values. What one may call passive definitions. The markers are signposts on the lifelong road of spiritual development, or metaphors for more intensive psycho-spiritual journeys of understanding. The Tarot in the same way affixes meanings to the cards in the major and minor arcana. In the case of the cards, these meanings or super-psychological trends were applied to the art of divination, the casting of fortunes, the exegesis of the unknown. The Tarot represents the unseen in action, impacting the physical reality to which we, embodied beings, are confined.

"Western Kabbalists considered the two systems, determined the correspondences between the Tree and its paths and the Tarot, and concluded that the one was merely a representation of the other, or perhaps more precisely, both were particularities of the same universal truth. The Tree of Life provided a more coherent codification of the Tarot's knowledge.

"Both systems, of course, have at their source the notion that a correct apprehension of the knowledge conveyed by the imagery of its symbols leads to a further stage of knowledge. Truth scalloped within truth, the meanings and sheer vastness becoming larger and more profound with each step beyond the mundane."

"But you're just playing cards," Brett protested. "You're not understanding anything; you're not gaining any knowledge."

"We climb the Tree by mechanism of chance and dealt hands and concomitantly make the assumption that the forces of the universe are acting upon all the random variables to produce an outcome which is inevitable. The winner is supposed to win because it's been pre-ordained."

Brett fanned his cards, looking again at the Magician with his sparkling dark eyes and the obscure cap tilted back on his head. "And for all this favor shone down from heaven he gets. . .what? The satisfaction of knowing he was in tune with the universe or God or random fate?"

"Knowledge."

"Explain that."

Ritter winked, and Brett found himself leaning back in his chair considering not only Ritter's ferocity, but the grinning bandoleer of fools lounging around the table. The four men smiled down on his ignorance as though it was an inside joke, or worse, a simpleminded joke he wasn't managing to comprehend.

He thought, *At least it keeps them busy and out of trouble.*

"The winner creates the day which is yet to be, ♠ Ritter said at last. ♠ He may, should he choose, dare to make a world."

Ilam picked his card from the middle of the deck, glanced at it, then rolled his eyes and flicked it into the discard pile. The Three of Coins.

"Not my night," he said amiably. "Anyone with a Six of Staves who would be willing to part with it cheaply?"

Jervis chuckled. "Go fish."

Brett heard them only at a distance. "So let me understand this. You believe that the outcome of this game will actually impact the events here in the station tomorrow? The winner's deal makes things happen?"

"You must define your terminology with more precision," Ritter answered. He fingered the rightmost card in his hand, massaging the rounded corner with his index finger.

"The cards cause events to occur."

"No."

"Then the cards only predict events."

"Again, not an adequate assumption, Commander."

Brett ground his teeth. "Then explain it to me."

Jervis selected a card from the bottom of the fanned deck, the one nearest to him. He peered at it, tapped its edge against the table.

They waited on him. Sievers shifted nervously in his seat.

"I'm thinking. Give me a minute," Jervis muttered.

Ritter rolled his shoulders around, released their tension. He blinked hard once or twice, then adjusted his glasses on his nose.

"It's a simple question," Brett said.

"Most simple questions require extremely complex answers," Ritter responded.

"Take, for example, the simple question *Can we create a habitable world from a sterile one?*"

Brett shook his head at once. "That complexity only derives from the mechanism. The answer itself is a simple yes or no."

Ritter frowned. "And I say that your query has as much to do with mechanism as it does solution. Very well. You've asked not only *does* the Tarot impact events, but *how* that impact occurs. Do we believe that the application of free will causes events to occur? Do we believe in a linear cause and effect? Or do you believe that history has weight and the pattern of events lead to a diminished capacity to choose for or against them over time? What do we make of the multiverse hypothesis, that each moment is sovereign, absolutely free and all potentialities are actuated in parallel universes to our own? These are all valid mechanisms with which I might answer you. ♦

Ritter raised his eyes from the cards in his hand. "Your questions, Brett, refer to which of these models of space-time understanding we accept. Historically, the fundamental claim against divination has been its charlatantry. Any lout with articulation and a deck of cards could propose to read your future, and that future was always appended with the caveat that the reading is 'that which might be unless factors change. The cards reflect the future as all the related factors stand now, at this moment.' The understanding being that either the one seeking divination could positively or negatively effect the ultimate outcome, but also factors beyond the individual's control could change and change that which was to be.

"Thus, if the reading fails to reflect reality, it is not because the diviner erred, but because the factors which would have resulted in that reality ceased to be valid. People act, things change. It's a messy sort of thing, but what is one to do? The cartomancer with any sort of pebble rattling about inside his skull was quick to point out that the Tarot is a study of trends and tendencies highly subject to change, and therefore he, the interpreter, was not responsible for the accuracy of the outcome. Not a very scientific approach, and justifiably rejected by the mass of thinking individuals."

Jervis finally decided upon keeping the card he had drawn. He added the Two of Cups to the discard stack.

Ritter continued, "As a scientist, I abhor imprecision. But divination is, at its core a subjective exercise. The future I divine for myself may have no perceptive ramifications for anyone outside of myself. The question is, does that make a reading more or less valid? Has my free will been voided in any way by knowing what is to come? Am I activating my free will because I know what is to happen, and so I behave in such a way as to make the outcome inevitable, even without consciously doing so? Is there the possibility that I have, should the predicted events come to pass, interpreted them as consistent with the divination when they were, in fact, not consistent at all? Discounting chicanery altogether, there are still too many factors which may lead to error either in the interpretation of the reading of the cards, or the interpretation of the reading of _post facto _reality. Divination simply does not cohere to standards of scientific rigor."

It was Ritter's turn. He spread the deck with his fingers, nimbly tapping across three and four at a time as though strolling through a field of possibilities. At the end of his reach, he plucked out a card and slid it face down toward himself. He looked at Brett, their eyes meeting.

"A linear understanding of time-space would hold that the diviner is viewing the effects of causal factors that have a traceable lineage. There are real events that either will or will not occur based on various inputs, trends and predilections. The cartomancer is not necessarily wrong if his reading goes awry because it is valid to assume that one of the factors has failed to comply with the current trend.

"Contrarily, if we believe that history has momentum and weight, the cartomancer must either be correct or incorrect. He has no middle ground because the events cannot be turned from their course by simple factorial deviation.

"The multiverse theory provides that the cards have selected one possible outcome that is completely accurate in some universe parallel to this one, though not necessarily this one.

"In two of the three hypotheses, the diviner is allowed to skitter beyond reproach and stand behind the sacred battlements of free will. Both of those are unacceptable to me. It is my opinion that to accept the validity of divination, one must conclude that there is no free will on a practical level. The individual's

decisions are meaningless before the juggernaut of events, because by the time he realizes a decision must be made, the gallery of options has become so severely delimited as to be readily predictable. What the cards predict must occur because history has determined that those things must be."

Ritter dropped his eyes, glanced briefly at the card he had selected. His upper lip twitched and he flicked it away. Nine of Coins.

"This belief presupposes, of course," he said finally, "that the reading offered by the cards is invariably correct. Failing that, the entire scaffolding of logic collapses."

Nine times they'd gone around the table. The evening had matured into full night. Brett could feel his eyelids every time he blinked, so full of weariness they seemed to crunch like pebbles of glass over his corneas. He wanted to make some coffee. No, fuck the coffee. He wanted to go to bed and forget about this damned game, but he couldn't.

Round after round, Ritter failed to nab the one card he needed. Sievers had crowed his success twice, and could have as many as four of his five. Even Ilam had chuckled a time or two, and Jervis told them flat out that he lacked only the Queen of Wands to join Brett at Binah. Ritter wore dark bruises from fatigue or longing beneath his eyes. His glasses had slipped down his nose so many times and his trembling fingers rolled them up so often that the lenses were splotted and stained.

Brett enjoyed his discomfort more than he craved sleep.

Sievers nudged his elbow. "Your turn, Chili."

Five cards per player, he thought. That's twenty five, plus nine per round per person, another forty five. Which is seventy together, from seventy eight. Eight cards remained. He didn't have the math to calculate the chances that the Ace of Cups was one of those cards, as opposed to crouching about in Ritter's hand. He had the other three aces, plus the Magician. Keter required either the four Aces *or* the four Pages, and Ritter still seemed fairly confident in his chances, if increasingly desperate as cards vanished from play, so he must have gone the route of the Pages. If he hadn't been close, he wouldn't have been so secure at the outset; he couldn't have held aces then, because Brett had begun with the Ace of Wands and the Ace of Coins. Consequently, he must lack only a Page or the Fool. Surely no more than one card. And Brett was willing to bet that he didn't have the last Ace, because the wise move would have been to discard it at once, remove it from play and block Brett's chances of completing the phase in this round.

The missing Ace, and he'd warrant, the missing Page must still be in the deck. Brett could do that math. . . a one in four chance that he would win outright or at the very least manage to deflect Ritter until the next hand.

I can live with that, he thought, and selected the next to the bottom card.

The face showed an aqua malange, studded with flapping dolphins and frolicking, green-eyed merfolk. They leapt into the air from violet seas beneath a brazen summer sky, their arms raised high above their heads in a gesture of greeting. Against the background, the tan and powdered gleam of a sandy beach rolled up to the rugged brown walls of an island cove.

In the foreground, glistening waterspouts boiled from the lip of a bejeweled chalice, spilled into the ocean with a visual rumble of waves.

Ace of Cups.

Ritter crumpled as though his spine had been shattered. His cards tumbled from his fingers, and he covered his face with his hands, mashing his lenses against his eyebrows so that the legs sprang out from the side of his head like antennae. Brett thought for just a moment that the xenohydrologist was going to burst into tears.

Thankfully, he did not.

"How do I do this?" Brett asked, looking from face to face as the men gathered around him. "Right hand, left hand? Do I have to say any magic words?"

"However you want," Ilam suggested. "If the fates have smiled on thee, per the stipulations of the game, then they won't fault you for your technique, I think."

Brett smiled at the humor, but couldn't say he really cared. This was a formality, a task he performed because it was expected of him. The satisfaction had been in the victory, in knocking Ritter a bit off his pomposity. All he really wanted now was his bed.

"How do you do it?" he asked Ilam.

"Couldn't tell you, honestly. I've never won."

"Ritter always wins," Sievers added, grinning. Ritter cleared his throat, sounding pained and weary. "Shuffle the cards, Brett. Separate them with your left hand into three piles. Select one pile with your right hand and spread those cards out along the table. From those, choose ten one at a time and I'll show you where to lay them."

He'd been shuffling the cards all along. He said, "How about I just take the ten on top now?"

"It isn't done that way."

"Can be if I say so. This is my divination, right? The fates have smiled on me."

"I wouldn't put much faith in Ilam's comprehension of the fates, given his record in the game."

Brett shrugged. "Okay. Whatever."

He rippled through the top ten cards, counting them out with his fingers. He set the rest of the deck off to the side, and placed the remainder face down on the table.

"These are the ones I want. What's next?"

Ritter walked him through the process. Brett placed the top card on the table, in the position called the Covering, straight up and down. The second was set perpendicularly across it, which Ritter said was the Crossing. Directly above was the Crown and below the Root. To the right was the Past and to the left, the Future. To the right of this diamond pattern, Brett lay from bottom to top a line of cards representing the Questioner, the House, the Inside and the Outcome.

Brett studied the spread. "Now what?"

As an answer, Ritter produced a thin pocket computer and began entering data against the touchpad screen. "What I've done is gather more than two dozen sources from ancient to modern which commented upon the meaning of the Tarot. Those card by card dissections have been correlated for their corresponding elements to achieve a sort of mean agreement. ♦♦

The pocket unit made a faint buzzing noise to indicate that it had completed its computations.

"Shall I give you the results, Commander?"

"Fire away."

"That which covers you represents the events and issues and attitudes prevalent in the given situation. It is the influences both known and unknown on the discussion at hand, the general prediction of tomorrow's events. In this case, it is the Four of Staves."

Brett held up his hand. "When you say 'events' do you mean events for the station in general, or events that I'll experience directly. How general is this interpretation?"

"Meaning?"

"Say the cards tell me there's sex in my future," he replied. There wasn't any reason he could see not to poke some fun at this exercise. "If the reading is specific to me, I'll have to make sure I shower in the morning, that I put on a clean suit and break out the cologne. I have to get ready, if you understand me. Now, if the reading is general, it might be anyone in the station who's going to have sex, and I can think of at least two couples in the chem prog lab alone who make that an almost pointless prediction. That's more like a given status than a

noteworthy event. Then not only will I have wasted my time in sprucing up the old daisy here, I'd also be setting up Mr. Cleveland for some major disappointment which, as you can imagine, makes him pretty unpleasant to live with."

Ritter's jaw tightened. "There is some degree of the general and the specific in each reading. It should be fairly obvious to you which one is in effect."

"Mr. Cleveland?" Jervis inquired, grinning. "You're joking. Tell me you're joking."

The others started to laugh, but Ritter cut them off. "Let's get on with it. The Four of Staves signifies rest, seclusion and isolation from the cares of the world. It is a card which represents the status of exile, both literal and figurative."

Ilam said, "We get that one frequently."

"We are a people whose experience is seasoned by the fact of our environment," Ritter said, nodding. "It tends to color our perspective on all things. That which crosses you, which may also be understood as the difficulties which bar your path--our paths--is the Five of Cups. This card suggests loss, either in the future, or which has previously occurred but remains haunting. There are overtones of sorrow and bitterness which have resulted from this loss, or even feelings of guilt. Often the Five of Cups can represent the end of an extant relationship."

Sievers brushed his hand across his brow. "Good thing for you we don't get regular mail service. That has 'Dear John' letter written all over it."

"Or, it could have more to do with Ekers and Rian, from chem prog, like he said," Jervis added. "Maybe they're on the outs, eh? Maybe it's Ekers loss. . .which could be a wise man's gain, if you're understanding me. She is not an objectionable piece of pie."

Brett was too tired for their banter. "Moving along."

"The card above, that which crowns you, represents what might be called the most fitting future outcome, or the best possible outcome given the elements presented. In the context of our little game, we often read both the Crown and the final card of the reading as not necessarily events to expect in the next twenty-four hours, but events which may manifest further in the future as a result

of circumstances which develop tomorrow. One may have to trace the thread backward to find the correspondence, but the observant are rewarded, I think.

"The Tower, number sixteen of the major arcana, is a particularly dark and potent card." Ritter glanced up from the screen. He swallowed and his adam's apple rolled up and down the length of his throat. "It has been called the Tower of Babel. The Tower signifies the error of viewing through a glass darkly, and building an empire upon such incorrect vision. Of imagining that men might be gods. The errors which have been made are irrevocable, and the judgement, when it comes, will be sudden, fierce and consuming as fire."

There was silence, a sort of breathless space between Ritter's final word and the awareness of the machinery in the background. The regular card players seemed stupefied by dread.

Brett chuckled to break the mood. "Well. At least it wasn't the Death card."

"No," Ilam said, offering a faint, dry grin. "What you got was much worse."

"Shall we continue?" Ritter asked, offering a game attempt at calm, but Brett could see his hands trembling. He didn't wait for an answer. "In the interest of brevity, I'll note for you that both the root and the recent events positions contain remarkably similar cards. This suggests that trends which have fomented for some considerable time continue to have dramatic impact up to the present. Defining moments, characterized by the Two of Staves especially, have come boiling to the surface. This is paradigmatic of a choice to be made. The woman sits blindfolded upon the rocks, just above the raging black sea. She is surrounded by storms, and in each hand bears a sword. The swords are possibilities, paths of decision which have been held in balance for some time. But the grimace on her face suggests that the balance is precarious, she is becoming weary. There is a choice to be made, but the correct path cannot be clearly viewed because of a blindness. Choose wisely, is the advice of this card. Crisis approaches, but it is not new, not fresh and unexpected, but part of the past."

"Keep going," Brett muttered.

"The leftmost card is the immediate future, what may be measured in hours, or in the course of a day. It has become, for us at least, the most significant card in the reading. The others may help us understand ourselves, or our place in the events

and trends at work, or even the distant ramifications of our actions taken today, but this card is the most immediate. It is tomorrow.

"The card you have chosen is called The Moon." Ritter fixed him with a level gaze, his eyes large and round behind his glasses. "This card is a warning of deception. That which has been or will be perceived, or which may be understood to be true from sources which are generally reliable, may not be an accurate representation of reality. All is not what it seems, Commander. Certainty is an illusion, and mystery hulks within mystery, an enigma which denies solution. On the card, the moon rises between two twin towers. One is the Tower of Truth. The other is the Tower of the Crown that you have already seen.

"Tomorrow, it would seem, is a critical day. You are exploring a territory for which there is no map."

Abruptly, Ilam said, "This is the last time we let you win, Chili. The absolute last."

They all laughed, and Ritter's ominous tension evaporated like fairy dust.

"The next card is known by position as the Querant. It represents the person who is casting the reading, and elements of his personality which may or may not influence the imminent trends, depending upon their application."

"This is me?" Brett asked.

He studied the card, the Four of Cups. On its face was a young man, his back set against a tree. He seemed to glare at four overturned goblets set on the grass at his feet, as though he had tasted each and found them all insufficient, leaving him sour and unfulfilled.

Brett frowned. "I would have liked something a little less. . .petulant. More masculine."

"This is the card of dreams, or dreams turned to disillusionment. It is a card of nostalgia by some interpretations. The characteristic of looking toward the past to make sense of the future, or preferring what has come before to what has come into being now."

Brett only grunted.

"Again, with the eighth and ninth cards, we see a correspondence. These are the House and the Interior positions, representing both environmental aspects, general feelings of one's surroundings and the motivating feelings for good or ill—that is, hopes and fears. These two positions are often linked closely together. We have, in order, the Three of Pentacles and the Three of Wands. The threes are reinforcements, complementary. The first is a card of labor, of skilled workers performing the tasks at hand. The second is a card of hope, signifying those who look toward the future, toward discovery and bright tomorrows. They have come across a vast distance, a voyage over the sea in the card, and look wondrously at a glorious and fertile plain ripe with the promise of new life."

Ritter smiled weakly, as though heartened. "These cards present a curious dissonance with the final position, the ultimate outcome of that which will be. The trends set in motion, compounded and exacerbated culminate in this card." He tapped it once, with his finger. The Nine of Staves. "The Nine shows a man rising in tears from his bed. A man wracked by nightmares that grip him still, even awake, leaving him both stunned and horrified. The title of this card is Despair. It promises a future in which dreams of success and joy and pleasure, in which all fresh hopes, end in failure."

Jervis exhaled loudly, disgusted, through his nose. "That really sucks."

"Definitely not letting you play with us anymore, mate," Ilam added, though smiled weakly.

Brett shook his head. "So how do we extrapolate this to the entire station?"

Eyebrow raised in curiosity, Ritter snapped his portable unit closed and leaned toward him. "What do you mean?"

"That seemed to have some pretty specific applications. Or do you view Persia as a macrocosm of the tomorrow that's been forecast for me."

The curiosity became a squint. "It's interesting that you would say such a thing. How is that it seems specific to you, Commander?"

"Don't tell me you can't see the specificity," Brett barked. He spread his arms, indicating the lay of cards with the sweeping gesture. "Choices which have to be made. Lousy data that could result in catastrophe. It's all command level responsibility. The cards say something is going to go wrong, and it's going to be

my fault, or something I could've prevented. That's a pretty damned individual reading."

"That is one possible interpretation, I suppose," Ritter said. He steepled his fingers over the bridge of his nose, his chin resting on his thumbs. "Interesting."

"You see something else?"

"Certainly."

"Let's hear it."

Ritter began to tap the cards, one at a time, with his finger. "The Four of Swords we covered as a universal condition, meaning isolation. The Five of Cups crosses us all with a meaning of sorrow, disillusionment, homesickness perhaps. This is a fair assessment of the station personnel *en masse*, and a logical byproduct of the current situation as described. The cards referent to the past discuss balance, a choice between extremes which, when related to the preceding cards, clarify that as we approach the mid-term of our service contracts, we are all experiencing some difficulty maintaining our sense of perspective. Five years is past, true, but five more remain. Will we be able to hold together the unfurling fabric of our determination? Will we destroy ourselves with isolation, loneliness, thoughts of the loss of our homes and families and all that we have held dear? This is the weight against which we struggle.

"Proceed to tomorrow, the near future as particulated by The Moon. What is this but a warning of enemies beyond our sight? Bad intelligence, poor awareness of *ourselves*. We've not paid sufficient attention to our morale because we have been consumed with our work and our diversions and concomitantly have failed to attend to our mental health. We've missed the breakdown of our emotional integrity as *earthlings* by allowing ourselves to lose our tether.

"Thus, the Querant, the 'you' or the 'us' cumulatively. We embarked upon a grand adventure to the stars, only to find now that we've been here for what seems half an age that we cannot resist dreams of home. We torment ourselves with fantasies of blue skies and green grass and strangers to meet on the streets of towns we've never seen, rather than accept the bitter but eternal round of Tappen and Sievers and Ecker and Djen and the other thirty odd souls of Persia.

"Moving on, you see again a ready interpretation of our environment and our

hopes as complementary units. A great journey has borne us to a new land, a new potential. And on this grand frontier, we don't cast our eyes back, but we cast them forward. We look toward what will be, toward our racial destiny. This is our mission statement in a nutshell. Not just Persia's or Sahara's or the even this entire, single project, but the driving mission of all people, whether on Archae Stoddard or Mars or the Erascii Belt. Or even Earth itself. All of humanity in our far cast corners of the galaxy. We are contributing to the well-being of our own species by daring the hostile cosmos to make a world for those who are yet to come. A world ripe with potential and a future as bright as the past. These things motivate us, keep us level and strong. These things fill us with hope."

On the final card, Ritter paused, lingered. He ran his finger across the card's face. "At the same time, there are other things happening which we have not yet grasped. Danger lurks around the corner, just beyond our understanding at present. Watch and wait, but with vigilance, that is the message to us. Awaken from our stupor of work and drink and willing blindness as we bide our time to the end of our contracts. Choose to see the improbable. Face the nightmare of ignorance. Study, as it were, to show ourselves approved of the cosmos. Or face the alternative. Disaster and crisis."

"So. . .you're saying we're all doomed. Not just me." Brett winked at him. "That does make me feel a bit better, I guess."

"If you'd like, I can provide further analysis of the cards you've selected. There are a few interesting patterns which--"

"I'll pass, thanks."

"You will agree, however, that it is an accurate representation of our situation?"

"It's better than taking it up the ass all by myself, I'll give you that."

Ritter winced at his sarcasm, but said nothing.

"So we're done, then," Brett went on, trying to goad him. "Tomorrow I'll draft a station memo reminding everyone to contemplate their cosmic navels, whistle while they work and whatnot, and we'll stave off the coming crisis."

"Or," Sievers pointed out, "you can take another card."

"And why would I do that? According to Ritter, things are pretty clear cut."

"Why, to influence the future, old man!" Ilam said. "Certainly, all of this beforehand is nothing more than trend to trend mutual buggery. The last card is all the fun. Or in this case, it might just damned well stave off a bleeding disaster."

Ritter seemed to nod his encouragement. "It is the Will in action, Commander. Knowing what is to come, the drawing of the one card signifies the individual's ability to make an impact, to recreate reality to fit his needs and his desires. It is a denial of the condition which places us at the mercy of destiny, history and tidal forces beyond our control."

Brett looked at them, from face to face, crowded as they were around the table. "One card, and you think I can make it all better?"

"Or worse," Ilam piped merrily. "You could make it worse."

"But I don't have to. I can choose to let it ride."

Ritter nodded unhappily. "You may."

Brett reached toward the deck. He held his hand unwavering above the remaining cards. He said, "You really think this will make a difference? If I pull this card and choose to replace, let's say, that Tower card everyone seems so worried about, I can make it all better again? Everyone's angst and depression and old-style European ennui will vanish like phantoms? The crises that threaten to crumble the walls of the station and erupt the burning metallic core of the planet itself will magically disappear? It all comes down to my decision to turn over this one card?"

He was mocking them, and they knew it.

"It's just a game, Commander, played merely for its amusement value," Ritter said.

Brett said, "What the hell, right?"

He flicked the Tower card off the table, sent it pinwheeling across the room. At the same time, he pulled the top card from the deck, flipped it up for them to see

and slapped it down in the other's place.

Sievers paled visibly. Ilam had the good grace to do nothing more than cough.

Ritter beamed like a man vindicated. "It seems, Commander, that despite your intervention, tomorrow will be a bad day indeed."

The card he had chosen was *Death*.

Brett wasn't going to argue. "I'm fucking going to bed."

3.

Wet sand between his toes, but his face was warmed by the driftwood fire. The waves he couldn't see lapped up against the beach, probably just inches from where his toes dug their trenches, wriggled in. Lying on his back, his face bared to the nakedness of the stars, he made angel wing patterns with his hands, just as he had done in his youth, growing up in Indiana, in the wet and chilly snow.

His fingers brushed the soft flesh of a sweet Georgia peach, and she giggled. "What did you say was the point of this?"

He laughed in return, a burst of pure, barking pleasure. "We're making angels."

"You said to scissor my legs. You're not. You're wriggling your toes in the sand."

"I like the feel of it. I'll do the skirt later."

"I am so drunk, Markus." She burped, and he laughed at that, too. She'd brought dandelion tea to the picnic. He'd brought the last bottle of strawberry wine his sister had given them for Christmas.

Dandelion tea was not what either of them thought it would be. Not even the dog would drink it, and he had an established reputation for consuming anything seasoned with refined sugar.

He would have liked to roll to her, to plant a wet and sloppy kiss against her lips, but she wasn't the only one sloshed. Part of him realized that if he rolled, he'd squash her, probably suffocate her beneath his weight before he could get himself flipped back over. Not a romantic way to end the evening, especially this

evening, the one for which they'd scrimped and saved and battered their savings account into compliance for the last three years. The first night in the house just above that rise behind him. That one, with the bay windows in back, facing the water, it's paint salt scarred and peeling, the gutters falling off, the deck all but unsalvageable. Yes, the one with the peeling wallpaper in the dining room, the clotting scrubweed gardens on either side of the driveway, and the god-blessed certain dry rot eating up the footers on either side of the front door.

But also the one with the private stake to this stretch of beach on the isolated Georgia coast. No neighbors except at shouting distance, no superhighway rattling the window panes, no thumping stereo upstairs and gunshot spattered drug transactions down in the parking garage.

A view of seaweed breakers and child's eye combers and a sky that rolled on for goddamned ever and ever.

The movers would come tomorrow with the trucks loaded and tottering down the gravel drive. Boxes to unload, dishes to cabinet, linens to store. A busy, hectic, dreaded day came with the sun. But they'd brought their bed this afternoon by wedging the frame and headboard into the trunk of her Subaru and bungee cording the mattress and box springs to the roof. And when you're young and lithe and strong with romantic, erotic happiness, the bed is all that's needed to make it home.

He was not going to spoil the promise of that bed for anything. The first night in your dream house comes only once, and that only if you're lucky.

Instead, they lay there together, their fingers just touching, the smell of the ocean in their nostrils and the cool of the sand against their backs.

And he thought then, and remembered later, months afterward in the days when he was still a young man in years but felt ancient in his soul and hadn't yet learned to manage that disparity, *I will never love as I do now. I will never feel loved like I do at this moment. The world will never be as harsh a place as it was now that I know this, but it will never be as kind and gentle and full of promise, either. Here, now, isolated but connected, I have ascended to a radiant height. I am at the pinnacle of my existence.*

"Those stars, Markus, those stars go on forever," she said to him. "We never had stars like that in the city. I'd forgotten them, and now they don't seem to be the

same stars I saw as a child."

At some point, initiated by him or her, he couldn't ever get it straight, they came together. Hungry, panting, arms and legs churning the sand, stuck in clothing, battling for purchase on the sand. And she moaned in his ear, which made the dog howl at him, which led to laughter and was not just drunken, but beaming with joy. A swim in the frigid Atlantic waters, naked flesh puckering like lemon thoughts, retracting like timid turtles, then warm by fire again, swathed in the picnic blanket with the dog happy in their laps.

Brett woke for a moment, less than ten seconds. He had been crying in his sleep. He had been, hadn't he? The pillow was wet, so were his cheeks, and there was that helium balloon of aching emptiness swelling in his chest.

But the dream, that was something he didn't remember, and he was glad.

He rolled onto his side, pushing the stained pillow to the floor as he lulled himself once more away from waking.

Ritter dealt the cards onto his bedside table once more. He sat on his bunk, his pointed knees spread around the dented edges of the nightstand, his ponderous and thin chest hunched forward at an angle that knotted aches in the small of his back. The glare of his reading lamp cast out the room's shadows, at least from the playing surface. It wasn't an ideal location. The table was too small. He had to keep shifting the cards so that they'd fit, overlapping the left column head to toe so he wouldn't lose the top or bottom cards off the edge if he brushed them.

A bead of sweat rolled along his forehead, then down his nose leaving a prised rivulet just inside the right lens of his glasses. He ignored it, his brows furrowed, his hands trembling with fatigue and confusion. At times, his mouth would work noiselessly as though he sought to form words he could not speak.

It was coming on toward morning now, and nothing had changed. It was impossible, or at least highly improbable, but he had re-proved the probabilities better than a dozen times.

He shuffled again, taking care to rearrange, recombine at least one hundred times before dealing the spread. That which Covers. That which Crosses. Crown and Root. All ten cards in the correct order, murmuring their names as he let them fall with the *ftwvap* that couldn't help but remind him of Icky and his auras and his sexual fantastical delusions.

Brett's victory in the game had been wrong. Ritter felt that on an almost molecular level of consciousness. The irrectitude of it had settled like lead in his bones, filled his head with a greasy miasmatic film. Brett didn't understand the game. He didn't understand the *responsibility* of casting the future, of daring to make a world. With his glib irreverence and his mocking, grinning idiocy, he'd forged the weapons of disaster. Brett had called down the fire of heaven on Persia Station, then raised himself to the mountaintop, his arms wide and greedy to accept a gift from the hands of hostile gods.

And so Ritter had come here, back to his cell of room, to cast that future again. Perhaps not to change what had been so foolishly scrawled upon the next day, but to mitigate the harshness if he could. He came with the intention of scrying an individual reading for every man and woman in the station, assigning to each a method, a possibility, a simple damnable hope of averting the end Brett had created for them.

Only it wasn't working. Impossibly, it was not working at all. That which Covers was invariably the Four of Staves. Crossing always the Five of Cups. Tomorrow's forecast, The Moon. A complete correspondence from Brett to every other hand Ritter had dealt himself, down to the Death card as the electrifying, stomach churning epilogue.

It had shaken him the first time. The probability of duplicating a ten card set in the same order on consecutive hands from a seventy-eight card deck was something along a magnitude of 4.57×10^{18} to one against. He had sat, holding his chest, his eyes blinking and his mouth hanging. . .and his mind racing as he considered thoughts of destiny. Predetermination. Then dismissed them. Perhaps he'd forgotten to shuffle.

So the second time, he had shuffled vigorously, calmly, calculating as he did so that the chances of duplicating the previous results in a third consecutive hand was approaching 2.09×10^{37} to one against. An immense figure. His eyeballs ached just trying to imagine a number so large.

Now on his fifteenth iteration, he had stopped computing the odds. To a large extent, he had ceased to expect any further outcome.

He continued because he couldn't help himself. Every time he looked at the final lay of cards, they were the same. Every time he shuffled just a bit differently. More shuffles, less shuffles. Crammed together in wide chunks, fanned and interlaced. He had even performed the restricted bridge. And it didn't help.

He ignored the throbbing in his back, the dry crackle in his throat when he swallowed, the heavy, burning pressure on his eyes. None of that was significant. Only this, this desperate endeavor he had undertaken.

This battle which he approached with all the intensity and rigor and thoroughness of a scientist.

The cards did not lie. Anyone who believed in the Tarot understood that. Faith meant that once a lay was performed, the diviner did not duplicate the question to prove himself wrong with a different answer. If someone else did so in the name of scientific debunking, you explained to them slowly and carefully that the second glimpse was either similar but nuanced, or reflecting another dimension to the issue under investigation. The weight of history demanded such an explanation. But even the most rabid proponent, the most faithful

cartomancer did not expect and would not believe that a drawn hand would be duplicated.

But here it was, proved over and over, and Ritter could do nothing about it except stand back in dreadful awe.

Because Brett had given them all a future inscribed on tablets of stone.

Ritter took up the cards again, aligned them in his hands and began his shuffle. He could not stop until he found the Moses, that one who would dash the commandment tablets to dust on the side of the mountain. Or a massive Sisyphus who would roll the boulder of fate along another trajectory that did not end in ruin.

Somewhere in the station's roster of personnel there would be a difference. He believed that. Someone would not be bound by Brett's casting, even if it was merely a minute difference. One card out of place, one eleventh draw that was not Death--someone who could bring the entire edifice down around them and carry salvation to the lost.

4.

The interior lock was on the second subsurface level, fully ten meters deep in the bitter stone mantle of Archae Stoddard. The halogen lighting system glared off polished concrete floors, metal banded shipping crates and line upon line of raw steel girders and curving, reflective walls. The circular shape of the Persia Station's interior--it was essentially a giant canister punched into the planet's crust--caught the ambient lighting and focused it with a renewed and virulent intensity. Most of the technicians roaming the loading bay wore the polarized goggles usually reserved for outdoor use.

Brett didn't have any goggles, so he shielded his eyes by squinting, then tried pressing his hand against his forehead like a frozen salute. The partial shadow deflected some of the glare, but not enough. His sleep-swollen eyes felt as though they would burst.

He hadn't even brushed his damned teeth. His entire mouth felt like a damp strap of leather.

There was some satisfaction in Ilam's arrival minutes later. He looked at least as

bad as Brett felt, maybe worse, and Brett wanted to say to him, I recognize those puffy eyes from my mirror this morning. But there wasn't enough humor in it to justify the energy it would take to open his mouth. Ilam had the good sense to halfway meet his gaze of greeting and curse before stumbling away.

Someone in the night, Brett thought, had transplanted a sausage for his brain. Undercooked, no less. He could almost feel it squishing around up there, softening, the fat liquefying, turning to puddled grease, getting ready to run out his ears. He was too old to be staying up into the wee hours playing cards with a gaggle of idiots. And probably should have been responsible enough to realize it.

"What are you doing here?" Djen growled from behind him.

Brett didn't turn to face her. It was too much of an effort. On the other hand, he wasn't sure he wanted to see her expression anyway. It was certain to be full of vitriol, probably with a pH-balance to match the acid in her voice. She stomped around to face him.

"I asked you a question, Commander," she said. Her eyes flared dangerously. She already had strapped into her environmental suit. Her helmet was slung between her forearm and him, carried like a stack of school books.

"I heard you," he said, disappointed by the muzziness in his speech. He should have attempted to warm up his tongue before trying it out in competition. "At least you got the rank right, if not the tone."

Her face hardened, but she settled back on her heels, accepting the reprimand.

"You're not going with us."

"I am going with you."

"I won't allow it," she snapped. "The duty log has been finalized."

He shrugged. "I changed the log."

"Then change it back, or change it to help Nathan and Stivetts on Two if you really just want to go outside."

"Nathan and Stivetts don't need any help."

"Neither do we, Commander. The repairs on Nine shouldn't be any more complex than those on Two."

"But Two is less than two kilometers away. Nine is better than thirty. They won't encounter the same weather risk."

"We don't need you."

"And I can pull my weight. I supervised the loading of the MUT this morning."

She stabbed at him with an accusing finger. "You sat on that crate in the corner while the techs loaded the MUT."

"That qualifies as supervision."

"You almost fell flat on your face when you dozed off. I saw that because *I* was supervising. I was the one with the clipboard. You're staying behind."

"Sorry, I'm not."

"This is a simple operation, Commander. Out to Nine and back again. We'll be back before noon. It doesn't merit your attention."

"And I have the prerogative to observe any operation I see fit." Brett remained firm, though it hurt his head to do so. Just listening to her yammer on hurt his head. He wanted to rub at his temples, but knew that would look like he was reconsidering.

Djen seemed to sense as much, and her fists tightened up against the helmet's faceplate as if she believed she could fracture the plastisheen. He wondered if she might break her teeth from grinding them. But he was within his rights as station commander, and she knew it. There was nothing she could do to prevent him.

She hissed at him. "You slept in your clothes."

It was intended as an insult, he supposed, an indication that he wasn't fit for the duty he'd allocated to himself. "I worked late."

"You worked on cigarettes and whiskey from the smell of you."

"I did not. I only consorted with people who did."

Djen rolled her eyes. "You sat up and played cards with Ritter on the obs deck. My God, Brett!"

"I was investigating and, I might add, successfully repelling the encroachment of an insidious, potentially debilitating advance by the lunatic fringe."

He crossed his arms over his chest, hoped he appeared imposing.

Djen suddenly quirked up one side of her mouth. Because she had allowed it, the tension between them evaporated.

He didn't care why she relented, only that it made his head hurt a little less.

"So you won," she said.

"I certainly did."

"And what did your fortune say?"

He almost flinched. "You know about that?"

"The whole station knows about that, Brett. Your Chief Theoretical Engineer and Xenohydrologist posts bits and pieces of the previous day's reading on the bulletin board in the rec room every morning."

"Well Christ, no wonder he finds success in most of his readings. The bastard is skewing the results."

Djen patted his arm in consolation. "He says that it's all in fun. You shouldn't think of it any other way."

"You might not say that if you'd seen him after he lost."

"I wish I had seen it."

She finally spared him a warm grin and generous eye contact without that spark of rancor. Brett answered it with a sort of tight-lipped grimace. It was all he could manage. She kept her hand where it rested, a companionable hold on his forearm, as though it was a form of apology.

She was a striking image, he thought, standing in the interior lock as the technicians shuffled the equipment back and forth to the mobile utility transport. She in her e-suit, with her boyish hair poking in wild curls and shining, pretty eyes full of excitement, her helmet clutched jauntily to her side. Her mouth firm, her lips held just slightly open as though breathing in something of his presence. Or perhaps exhaling a fragrance of her hidden self as an offering of understanding as she turned to face the threat of the outside world. It was an almost heroic picture.

Brett shrugged off her hand. "I'm going with you."

"Damn it," she said, letting it fall.

"Manipulative little bitch."

"Chauvinistic, overprotective bastard."

"I know you can do this job. It's not your ability that I doubt. My complete and utter faith in your ability has nothing to do with why I'm going along on this expedition. I swear."

"What, you've had a premonition?" She sounded bitter, disgusted with him, but in an almost playful way.

"I won the card game, didn't I?"

She didn't answer him.

"Get suited up, Brett," she said. "I'm pulling us out of here in forty-five minutes, with or without you."

Instead, he went in search of coffee.

He had just settled himself into one of the narrow chairs in the commissary, his steaming cup of coffee in one hand and a dubiously chocolate sprinkled doughnut in the other, when Ashburn found him. Ashburn was a dour man, tall and thin, but compact. He gave the impression of corded muscle, tightly wound. He was a sapling bent by strong winds, ready at any moment to snap back, vicious and erect. He was also the Station Security Officer. The only one, making him both Security Chief and data entry clerk and head investigator and anything else in between. Persia Station was a fully manned, thirty-two person duty site, and for the most part, even one sec-o was too many. Brett didn't hold this against him, only wondered at times to himself exactly what it was that Ashburn did to occupy his time.

"Need your input," Ashburn said without greeting. He slapped himself into the seat across the table. Brett could see that he held a considerable sheaf of loose papers. "We're having a problem with the Cassandra system."

Brett sighed. "Give it to me gently. And slowly. It's too early in the morning for situations."

"For the last couple of weeks, Cassandra has been sending out security notifications to my office terminal. These are generated status reports, you understand, based on periodic station diagnostics she's programmed to run and analyze."

"Disaster protocols?"

"No, sir. Breaches, clearances, file transfers. Those types of things."

Brett sipped at his coffee, burned his tongue. "And this involves me how?"

"She's reading unauthorized personnel in various sectors. Not like document storage or webnet hacking, but organics. She thinks we've been invaded."

"By little green men, eh?"

Ashburn frowned at his levity. "Look, boss, I've followed protocols. I've scanned the station top to bottom six times. All the compound theoreticals. Carbon-based, silicon-based, nitrate-based. You name it and I've looked for it. I thought maybe we could have picked up a rodent from the last year-freighter, but Cassandra

would've read that within the first couple of days, assuming one of the little bastards could find a way to survive without atmosphere in one of the holds. I'm getting nothing."

He knew what Ashburn was saying, though the sec-o wouldn't come right out with it. It wasn't a possibility anyone liked to consider. Brett glanced casually around them, made certain that they wouldn't be overheard. The only other people in the commissary were halfway across the room, and both of them were openly dozing over their powdered eggs. Still, he lowered his voice.

"You've run diagnostics on your equipment?"

"Of course."

"Preliminary diagnostics on Cassandra?"

"She checks out as far as my clearance will let me look."

"Have you noticed any other anomalous behaviors? Heard anything from the crew?"

Ashburn shook his head. "The logons are working, the data seems to be intact. No one is complaining about her. It may be an isolated failure. Corrupted programming or a bad cell, something fairly small that doesn't show up on the reports."

"Have you gone over the environmental numbers?"

"First thing every morning, and twice before bedtime. Station integrity looks good. That's why I'm chatting this up over coffee instead of screaming you out of bed, boss."

"You think it's a ghost," Brett said.

"No. I think it's a system malfunction, but a limited one. The security scans are wrong, plain and simple. As long as we don't get ourselves invaded until it gets fixed, we'll be fine."

He said this with absolute assurance, but there was an uneasiness in his tone, and Ashburn shifted his eyes to look just below Brett's nose.

Brett said, "You think I should talk to her."

"Just to see, you know. If you get nil results, we can rest easy, but I'd sure like to get one of the programming teams to do a full access diagnostic. Only, of course. . ."

Brett finished his thought. "Only you know the storms have wiped out comm for the next week. We can't get full access to her cells until Mission Comm HQ issues the passcode. Tell me again that you think the environmental systems are five by five."

"They are."

His coffee had cooled, but he found he no longer needed it. Brett carried more adrenaline than he needed suddenly, and that left him plenty awake. "All right. I'll talk to her this morning, jump her through some hoops. I'm on exterior detail until early afternoon, so I'm going to re-route command function to your id until fourteen hundred while I'm in there. That's not much more clearance than you've got, but it might give us a clue if you get lucky. Do the full diagnostic on the whole system while I'm gone, including the admin functions from my areas.

"In the meantime, program in a twelve minute environmental scan cycle. If the pressure, the atmospheric levels, or even the mean station temp deviate by more than five percent, you order everyone into e-suits and get me on the horn. And keep a special an eye on the ambient chemical mix. That's the most complex environmental sub. If she's going to fail, it's going to be there first, and you don't want to find out that she's screwed the nitrogen up to eighty some fuck percent before you noticed it. Understand?"

"I understand," Ashburn said, nodding. It was a plan of action, and that seemed to give him the confidence he needed. It was, after all, no longer his ass that would be in the trap if something went wrong. "I'll have to bring James in on the programming and some of the data analysis."

"Just James," Brett said. "Tell him and keep him locked up in your office until I get back. If he gets loose he'll yammer it to--what is her name, the little blond in anaerobics?"

"Merisa."

"Right, her. And she'll have a full panic spread through the station by mid-morning. Keep a clamp on him." Brett pushed himself to his feet, screeching the chair along the concrete floor in his hurry to rise. "We'll crunch the numbers again when I get back and then decide what else needs to happen. Anything else, Ashburn?"

The sec-o rubbed a flat hand across his chest, then pointed his finger at Brett's untouched doughnut. "If you're leaving, can I have that?"

5.

There was not a lock on the door to the Primary System Interface. It had a simple round handle. A doorknob. The wall-bolted ladder to this level did not have an electronic seal above it, but a low-tech pressure wheel which spun to the left. This was referred to as a double redundancy port. Every other station essential workarea was locked down via a complicated and mechanized system of passwords, swipecards and clearance checks, all of these routed through the central processing unit known as Cassandra. On the other hand, if something went wrong with Cassandra herself, even the dimmest of engineers understood that in the event of a massive system malfunction, the last thing a troubleshooter should have to do is argue with the computer about unlocking the door to the main console as the station's precious life support sifted out into the void.

Cassandra resided on the deepest sub-level of the station, below the electronic relays, below the heating units and storage tanks and overflowing metal shelving units piled high with outmoded station detritus. It was cool down here, Brett thought. Cool because Cassandra liked it that way. She had to, because she controlled the environmental gauges for all of Persia. She could have jacked it up to near ninety Celsius, if she wanted. Or possibly not. She probably had some programmed parameters hardwired into her command structure so that she could make her biosystem uncomfortable for humans but not lethal. Unless, of course, she decided to malfunction in a way that circumvented her hardwiring.

That was a thought. He should have worn an e-suit.

The corridor was shadowed; its flat metallic walls consumed the dim fluorescence of the track. Wide splotches of blackness filled the space between the fixtures, and Brett found himself skittering from pool to radiant pool.

As Station Commander, he was the only one who regularly used the primary

system interface. All other personnel interacted with Cassandra only indirectly, through keyboards and touchscreens and uploaded parm programs. They offered her numbers, and she analyzed that data and shot numbers back in return.

And she did it quickly. Ritter had once told him that without even breathing hard, she was capable of simulating a complete thermonuclear exchange between up to six specific combatants, creating and analyzing all environmental impacts, casualties, and long term consequences involved in such an event. She could log the lifestream of every molecular unit from its explosive, earth-rending release to its cindered death while assigning the exact mathematical probability to a four point decimal that an old lady in Iowa City x number of kilometers from the blast zone would contract a rad fallout related cancer.

As far back as the twenty-teens, someone had finally gotten around to convincing the world computer industry to upgrade its processing units from bits and bytes, megabytes and gigabytes to a system known as LOC's--a LOC being a single unit of data projected as the cumulative storage of every character in every book in the old Library of Congress in Washington..

Cassandra could process up to eighty trillion LOC units per second.

Persia station relied on her to do everything, because she could *do* everything. In the event that all station personnel were killed, she could carry on the task of programming the Sperling Engines, monitor their output and even make marginal adjustments along her discretionary logic tree for up to three years or until the correct passcode was presented to the primary interface by the subsequent station commander informing her to step it down.

Brett didn't always like talking to her. She was so rapid in her calculations, she was nearly prescient. She adapted to input logic with a speed that rendered her just short of conscious. She was cold and calculating, intellectually intimidating and as literally logical as death itself. It was not something he would ever enjoy.

Those reasons were, of course, just the beginning.

"Cassandra?" he asked as he pushed the door open. Like she would have gone somewhere.

The interior lights clicked, a camera-flash snap of mercury, argon and phosphorous gases, then hummed to an unsteady illumination.

"Please present system identification code."

The room was spare, a chilly five by five meter square. The walls were unadorned sheet metal, uniformly gray. Brett stepped past the doorway and the slap of his boots echoed on the bare floor. Against the far wall, Cassandra sat, a massive and hulking fabrication of blackened aluminum frame, wrist-thick coils and clackety status lights. Status lights which read, Brett noted, five by five, green across from the bottom of the panel to the top. High density telecom and network fiber cords looped from the front interface jacks around her casings and disappeared into the rigid wiring conduits which fed the station. Chem and opti sensors sprouted like sprigs of alfalfa from the reflective dome of Cassandra's reception array. Other sensors were seeded throughout the station: built into the walls, the floors, the doorpanels--built into the construction of Persia itself. The network transmitted a constant stream of raw data of every imaginable type down here, to this receptor for processing, analysis and adjustment.

Brett pushed himself further inside. He cleared his throat, the echo reverberating as a gargle of fear.

"This is a restricted project area. Please present system identification code."

The voice was female, rigidly monotone, vaguely threatening. It emerged from no perceptible source except the sharp angled, sleek cabinet of the machine itself.

"Brett, Markus J. Station Commander, Persia Site. Log id: Brett. Passcode: Emily Rosette."

"Log id verified. Passcode verified. Administrative access level verified. Please specify interface preference."

"Oral. Logic sequence: Brett oh-four-nine. Commence audio test."

A flicker of green along the right side. "Audio test complete. Voice pattern matches Brett, Markus Jasper. Station Commander, Persia Site. Earth Forces Terraform Command Project, Archae Stoddard."

There came the high pitched whine of servo motors deep within the machine's electronic bowels. The featureless central panel spun away on a hidden axis, and Cassandra rotated into view. Her eyes fluttered open, blue and clear and bright as the morning.

She said, "Good morning, Commander Brett."

As it always did, seeing her again just about broke him.

He said, "Good morning, Emily."

And following her invariable pattern, she replied, "That is not a recognized interface. Please rephrase the statement."

On the day in which he had driven his silver '44 Mitsubishi Panther convertible into town to get milk and bread and a new brand of food for the dog--one that would thicken his liquid bowel movements so he wouldn't stain the new carpet--it had rained during the morning. The early afternoon was all solar glare and sweltering humidity, and he drove with the top down on damp roads, looking in his own mind jaunty and confident behind his wraparound reflective sunglasses. And Emily had ridden with him in the passenger seat, without her seatbelt, though it did not occur to him that this omission possessed any significance.

Then the sharp curve around Miller's Hollow, and the tree trunk which occupied the middle of the road because it had not rained that morning, it had *stormed* like God's own wrath. And Markus had stomped on the breaks, the car had groaned, not skidded but scudded across the wet pavement, spun about in an almost complete circle. And by the time it stopped and he pried his fingers from the wheel and managed to keep himself from vomiting while he screamed at how close he had come to *totaling his car!*, she was already gone. He looked over to where she should be, and there were only her sandals in the floorboard where she had taken them off.

But there was the utility pole on her side, with the thin metal guy wire anchoring it above the rim of the hollow which plummeted below. The thick wire was stained pink, he saw, in a swath possibly half a meter wide. He pulled himself from the car and stood on wavering, cornstalk legs, stumbling more than walking around the Panther's trunk.

He thought he saw her, her upper half draped over the hollow's lip, her legs tangled, their angles broken and wrong.

But it was just her legs. Legs and nothing else.

Then he did vomit, coughing up his breakfast and possibly last night's dinner and, he was certain, most of his immortal soul.

Later, there were paramedics. There were policemen and ambulances and questions, shakes of the head, then a frenzied flight to the hospital during which he rode, stroking the luxurious strawberry blondness of her hair, his eyes fixed on her wan but stunning beauty, trying not to see her long and nimble legs packed in ice at the end of the bench on which he sat.

At the hospital were surgeons who chewed their lips and shrugged. There were neurologists who gave lectures on blunt force trauma and vegetation and using analogies which suggested that the human skull, when bounced off an electrical pole, has roughly the resiliency of an eggshell. There were Emily's parents flown up from Atlanta who wept and called him obscene names and signed paperwork he could not sign and made the decisions he was not allowed to make because he was just the fianc♦e. Four years the fianc♦e, her mother's glares had seemed to accuse.

They had looked at the bills. They had faced financial ruin. They had taken the offer from the nebulous Space Administration technology contractor Palimpsest Industries. They had sent her out among the stars, and because she and he could not be tied together because of the lack of that marriage certificate, they had sent him as well, though it would have been the last of their intentions.

For the days which followed, there was not that quality of clarity specific to most memories he held of her. In the dark, in the depths of full and lonely night, this was not something that bothered him.

Behind the plastisheen hull of her enviro-capsule, she was immersed in a clear, oxygenated nutrient bath. There were tubes which brought nutrients to what remained of her body, a sick yellow vitamin paste, pumped from a three hundred gallon storage tank directly into her stomach. There were obscene suction devices which carried away her waste products. Her hair was gone, not merely shorn away, but chemically and electrosurgically eradicated. In its place was a profusion of tangling, whipthin optical fibers punched through the delicate bones of her skullcap and into her neural centers. Palimpsest Industries had not returned her legs, and they had taken her arms as well, then fused the lithe athleticism of her torso with the machine, on this ridiculous swiveling platform, in a way he had never been able to determine. He'd never had the courage to look. Someone had covered her creamy white stomach and sun-freckled shoulders with a black, form-fitting jumper that reminded him of a shiny diving suit. The arms were taken because flesh hands were not deemed sensitive enough for data analysis. Any knowledge that could be derived from touch and texture could be more thoroughly and intimately gathered via the Cassandra System's own extendable grapple arms with their non-slip coating and triple tined grasping springs with ten billion micro-sensor pads implanted in their surface.

Someone had believed her hands as given were not up to the task. Brett, who had felt those fingers along his neck, flinched under those fine muscled hands as she worked the tension from his back, he knew better. He knew much more than they had known about the value of a hand.

Or the value of a smile. She would still do that sometimes, when the switches flipped in the processor and told her organic extension that it was appropriate, or expected. But that was part of the machine as well. That was Cassandra.

All that remained of Emily was her eyes.

He looked deeply into those eyes, which peered just as deeply if vacuously, back at him but conveyed only the recognition of Brett, Commander Markus Jasper.

He said, "Cassandra, perform a standard systems diagnostic."

Less than five seconds. "All systems normal."

When she spoke, her mouth moved, her lips formed the word which reached his

ears, but it was not her voice that came to him, but another. Metallic, cool, pregnant with reverberations. The sounds were emitted from the speakers in the machine itself, not from her throat.

"Search for non-logical programming entries. Parm since February One, Relative Station Calendar."

"There have been no central processor affective commands entered in that time frame."

He hummed to himself, thoughtful and growling. "Are you feeling okay?"

"That is a non-logical request. Please rephrase your query."

"Stomach ache? Light headed? Device pain? Crick in your scanner?" She had never told him when she was sick, but cradled it to herself, weeping in her sleep. He didn't expect that to change now.

"Please re--"

"Cancel," he said. "Cancel."

She blinked at him, waiting. Power conservation mode, he told himself. She wasn't waiting. Cassandra only dimly recognized his presence. She processed him by heat sensors, the sound of his breathing, and his chemical signature, which were all sorted, collated then converted to a binary series of switches that thwapped around inside her metal carapace. She would sit there watching and blinking until he died of old age and not give it any more processor time than she gave now.

Oh, that probably wasn't true. If his life indications began to fail, she'd launch into some medical emergency protocol. Notify Liston through his beeper, scroll warning messages across the medical terminals. Critical Personnel Incident! Critical Personnel Incident! Big red letters giving directions, and they'd probably get there in time to save him. She might append to the message that the failing life form was Brett, Commander Markus Jasper. She might not. He couldn't say because he'd never seen an actual warning message on the medical terminal. She might not differentiate between one crew member and another at all, except through the specificity of their passcode.

He tried again. "Security Officer Ashburn reports that he's been getting non-clearance personnel readings from the station integrity diagnostics. These are not verifiable by portable scan devices. He thinks they're wrong."

"Security Officer Ashburn is in error."

"You aren't generating the reports?"

"There are currently unauthorized personnel of unknown origin present in Persia Station."

"The portable scans say otherwise."

"The devices are in error."

"Could it be your devices? The extended sensor arrays could have been damaged."

Cassandra shifted her head, stared at him sidelong as though he had done something curious. "Persia Station hardware parameters provide for sixteen separate sensor redundancies in each hardware instance. The probability of non-diagnosed hardware failure on multiple occasions with the failure spreading to redundancy device coverage is highly unlikely, Commander Brett. Please request new user profile if more precise calculation is required."

Brett smiled to himself. User Profile Brett 049 was a programming project he had initiated less than six months prior. It was, he fully realized, an attempt to capture the Emily he was slowly losing through time and erosion. User Profile Brett 049 was *chatty*. Under its influence, Cassandra was as human as she understood how to be. She didn't say things like "the probability of so and so happening is fourteen times 10 to the twenty-fifth factorial". If he wanted data that specific, he entered his requests by keyboard. When he wanted the gist of things, when he had to use the primary system interface, this was the profile he selected. She said things like *Security Officer Ashburn is in error*, but said it with a tone approaching sarcasm. Profile Brett 049 had also been programmed as a dynamic learning environment, and through it, she learned quickly to understand his particular speech patterns and verbal idiosyncrasies. He hoped one day to have her saying things like *Ashburn is an idiot. Who are you going to believe? My bazillion watt brain or his tinker-toy erection set?*

It wasn't Emily, but it didn't quite seem like Cassandra, either. It was something in the middle, in a secure place that didn't make him want to sob.

He forced himself to continue. "I'm going to be turning over my administrative access to Security Officer Ashburn for the next few hours. I'll be out of the station assisting with the maintenance for Engine Nine."

"Commander Brett, Earth Forces Terraform Command regulations do not permit the absence of the Station Commander from his assigned duty site during extended periods of telecommunications failure. The current satellite and radio situation is projected to continue for the next seven days, relative station time."

"Regulations don't interest me at the moment."

"Should you choose to leave the station, a disciplinary report will be generated and forwarded to Earth Forces Terraform Command Mission Headquarters for review."

"That's fine, Cassandra. Simply perform the function. Transfer temporary administrative level access to Security Officer Ashburn. He'll be running some advanced diagnostics which may seem invasive to you, but he has my authorization. Is that understood? I don't want you to be cantankerous with him."

A slight pause. "That is not a valid processing or analysis class. I do not recognize the status 'cantankerous'."

"You never did."

Cassandra chose for reasons of her own to disregard his comment. Perhaps she found it incoherent. "The latest weather tracking reports prior to communications failure indicate moderate to substantial atmospheric instability. Station crew has been advised to suspend exterior operations for the duration."

He shook his head. "We're disregarding that advice. The mission will proceed as scheduled."

"Commander Brett, Markus Jasper has not been submitted as an active member of the duty roster for Exterior Maintenance Protocol Nine-four-seven. Please update mission duty log."

"Oral update: EMP 947. Brett, Markus Jasper. Mission Advisor."

A flurry of electronic noise. "Mission duty log updated. Conflict: Earth Forces Terraform Command regulations do not permit--"

"Cancel confirmation. Save the update."

Somewhere, a series of cooling fans activated, circulating a breath of warm, stagnant air. "Entry saved. Disciplinary report generated. Conflict: Mission Advisor Commander Brett, Markus Jasper's rank supercedes rank of Mission Primary Technical Specialist Riley, Djen Marilea. Please advise."

"No advice. Just list it in the log."

Cassandra performed that curious shift of her head again, confused or merely rapidly computing. Brett suspected she was attempting to perform the update and finding a whole batch of logical conflicts to resolve in the process. The quirk simulated a curious glance, or a confused misunderstanding, but it was none of those things. It was programmed personality.

"Commander Brett," she said finally. "The last sequence consists of irregular logic patterns."

"I know."

"Your technical specifications do not merit your presence on this exterior maintenance protocol. You are advised against this action."

"I have to go." He said this knowing that he didn't need to, but somehow unable to stop himself.

There was a pause. "Please define mission imperative. Input imperative is vague. Analysis of Persia Station personnel command structure is not consistent with *compulsion* for rank personnel Commander Brett, Markus Jasper."

Her failure to understand was so pathetic, he almost laughed, but it would have been a harsh, humorless, barking sound.

He said, "Cancel your analysis, Cassandra. It was an imprecise input. Operator error. Activate storage and review subset of dynamic learning environment,

current user profile."

"Storage and review subroutine activated. Data analysis delayed pending command input."

"You're not understanding what I'm saying because I haven't been very clear with you. I'm going on this job, and I recognize that it violates regulations given the current situation."

"Would you like to adjust your logic?"

"No. Logic has nothing to do with it. I have a bad feeling about this job." He brushed forward, not wanting to give her time to object to that statement.

"There's no reason for it, no supporting evidence. At least not anything that makes any sense. But I'm going nonetheless, when I wouldn't go if it was Ritter heading up the team, or Crites or Samuels or hell, anyone else. But I want to be there. I know I'm not qualified; I know I don't have the proper mission specifications. But I want to, you know? I want to be there if something goes wrong. In case there's something, anything I can do to help."

He reached out toward her, supplicating, as if he would touch her through the plastisheen shielding. "I like this girl, Em. I like her. I hate saying that, and I hate feeling it, but I like her. I do. And I think I want to like her more. And I despise the fact that I want that as well. It's been five years, Emily, five years and in some ways it seems like forever. In others it seems like just yesterday, but it's fading from me. The more I come down here, the less of you I see. The more it's Cassandra that I'm talking to.

"I don't know how much longer I can continue this way, pretending by myself. And I feel stupid and weak and guilty for giving up on it. I feel like I'm betraying you, but I'm tired of being lonely, too. I'm sorry, Em."

Lights fluttered. The processors twittered and blew hot sirocco wind of exhaust through the cooling fans. The primary system interface stood motionless, seeming to listen, seeming to ignore him completely, seeming to be nothing more than a modulated, engineered, programmed, constructed flesh machine.

Brett fell silent, and Cassandra made no response.

He said, "I thought you should know."

He turned, put his fist on the doorknob and opened the door. "Save all commands. Initiate transfer of administrative controls. Logoff: Brett, Markus J. Goodbye, Emily."

6.

The loading bay's interior airlock sealed with a hiss. A green light blinked on above the blast door to indicate that the seal was intact. The high whine of the industrial blowers forced a wall of air into the vast cavern of the sublevel, sending a skirl of loose paper and debris flying. The heavy Mobile Utility Transport edged forward under the negative pressure. The driver, a young scout tech named Vernon, idled the massive solar-converted diesel engines into life, and crawled the MUT forward. A second blast door, visible through the polarized windscreen, ground to the left. Behind it was a ramp which angled sharply toward ground level.

Vernon punched an amber toggle on the dash display and the vehicle's overhead halogens burst into hot white luminescence. Another bay door loomed at the far end of the incline and he inched toward it. The second door thumped closed behind them, jarring the entire ramp with its finality. A green status light blinked just above and to the left of the headlamps, and at once the final bay door grated open with a screech of metal on metal.

Vernon said, "Who's ready for a day at the beach? Fun and sun and frolic in the sand. Here we go!"

He stomped his foot on the accelerator. The engines belched a plume of black smoke like a toxic mushroom cloud and the transport lumbered, then groaned up the remaining meters and burst out into the morning.

The vehicle's massive industrial tread tires shredded the soft sand piled against the exterior door. It plowed furrows through the dunes, flattening their gentle curves against the steel undercarriage. Vernon continued to accelerate, spuming fine sand and small rocks from all six wheels.

"Solar cells at eighty percent," Ilam reported from the cockpit passenger seat.

Vernon nodded. "Batteries on full. Fuel cells holding at 23.9 Celsius. Diesel is liquid and clean, filters are performing normally. Switching to solar."

He slapped at a whole bank of switches. The growl of full-throated combustion engines abruptly ceased. In its place was the hum and vibration of the electric motors. Vernon backed off the pedals, and held them at a steady, if not sedate pace.

"Solar two is only charging at seventy-five percent." Ilam stared at a series of on-board displays fluttering across the passenger side status screen. "Cell six is at forty. Not critical, but we'll put a note in the maintenance log. Internal atmosphere is normalized. Seals all check as good. Transport status is five by five."

He made a half turn in his seat, and peered down the narrow gangway between the conical cockpit and the equipment and personnel hold. He gave the thumbs up signal, smiling through his faceplate.

"Ladies and gentlemen, you may pop your stops at your discretion. However, the captain would like to remind you that he is not liable for accidents, lost and stolen items or sudden, catastrophic cabin depressurization. He would most specifically like to remind all passengers that the external ambient air quality is very bad, the atmospheric pressure is holding at a steady six-one-four millibars and the planet temperature this morning is a chilly one hundred and seventy two Kelvins with highs only expected in the two hundred teen Kelvin range. Bundle up out there, double check your toe warmers and your e-suit heat exchange, and thank you for flying with Archae Airways."

Vernon laughed, then couldn't resist adding his own humor. "Now, if you'll look out the windows to your left, you'll see sand. Or to the right, sand again! Everywhere it's sand! The good news is that it probably won't rain today."

Brett stopped listening to them. He released the seals below his helmet, ratcheted the connection to the left and pulled his head clear. He shook his head back and forth vigorously, trying to clear the stuffiness in his ears. The pop was almost painful.

To his left, Djen was doing the same. Her helmet came free and she brushed her gloved hands through her mop of curls.

Brett turned away first, before she met his eyes, and he focused his attention out the windows. Archae Stoddard's dunes and low hills and occasional jutting stone spire wheeled around them. The sand had blown away in places, revealing solid

crust like bedrock, a slate colored stone gouged by years and wind. There were mountains away off to the left, directly ahead of Brett as he peered at them. These were tall, he knew from global surveys, or at least tall in Archae Stoddard relative terms. The highest peak was perhaps one and a half thousand meters; the range in general averaged nearly a thousand. In the brittle morning light, those rocks were black, distant. Rills and valleys carved by weather and time itself branched off from their path. Most were shallow, wouldn't even hide a man from view unless he stooped. A few opened into narrow chasm-like canyons deep with settled sand and fierce, gusting winds which would come from seemingly nowhere, grab that latent sand in a wicked vortex and hurl it up the canyon walls in blinding spumes. Some of those freak blasts had been known to pit plastisheen.

He switched his gaze toward the horizon. Early morning, the sun just climbing the horizon, the usual phlegm-yellow sky was stained with streaks of tangerine and crimson. It was like staring up into a vast Tequila Sunrise.

Except for that bit of clouds off to the west, of course. Those were gray and ugly, and he imagined they probably smelled bad, though he couldn't have said why. The latest weather extrapolations put this bank of thunderheads no more than three hours away. If they could get out to Nine and back in good time, they might miss the worst of the weather.

"I would have left without you," Djen said. "It was Ilam who made us wait. He couldn't find his gloves. And him I couldn't do without. When I said forty-five minutes, I meant it."

Brett nodded vaguely. "And I believed you."

"You were fifteen minutes late."

"I had last minute station business." Though it would mean nothing to her, or at least not the correct things, he added, "I had to visit the primary system interface this morning before we left."

She shuddered visibly, and he imagined something more than sympathy in her expression. "That must have been unpleasant."

"I don't mind so much. Why do you say that?"

"I don't know why you subject yourself to it."

Users had an automatic visceral reaction to the primary interface, never pleasant, but Bett had textbook answers with which he could explain himself. Or defend himself. "When I leave the station in someone else's hands, I want to make certain Cassandra comprehends. The primary interface offers improved precision of understanding."

"She understands typewritten orders, Markus."

"I'm not always so sure. Not of her ability, of course, but of my own clarity. I'm not much of a programmer. For important commands, I prefer the verbal interface. I've set up a number of profiles for maximum comprehension."

Djen seemed willing to let it go at that, and Brett settled back against the hard passenger bench. The unforgiving terrain jostled them mercilessly, slamming the axle's over thrusts of rock, uneven tracks and the occasional rolling gully. He set his feet against the metal cleats in the middle of the floor and tried to hold himself in place against the transport's curved interior wall. Then it was only his bones that thumped and vibrated with each impact.

"Why would they do something like that?" Djen asked him. The question lurched at him like a blow from the dark.

"Do what?"

"Don't be stupid, Markus. You know what I mean."

He shrugged his shoulders, realizing he should not have expected her to let him off easily. ♦ The primary interface allows the machine to act intuitively when the need to program efficiently under severe time constraints arises. It's better equipped to understand the human thought process than a cognate programming language can mimic. It successfully gives us applications built on what we mean rather than what we say. Most of the time, I mean."

Djen curled her lip, not buying it at all. "It doesn't fill in the gaps left by our own failure to reason."

That isn't enough of a justification, is what she did not say. She didn't have to. Brett could read it in the outraged flush of her skin.

"But it does interpret input data less rigidly. It understands nuances. Cassandra senses when the data doesn't match the expectation or the reality it's supposed to reflect. She keeps you from stumbling over stupid syntax errors that would cost us hours of debugging. Don't get me wrong, I wouldn't code a complex application using the primary interface, but she's a whiz at debugging and fine-tuning once the framework is in place."

She squinted at him, harboring suspicions or judgments he couldn't guess. "That data is filtered through some poor soul's humanity. You do understand that, don't you?"

"The self-definitional cortices have been suppressed. Cassandra is only partially human, and that only in the strictest biological sense." He wanted to shudder just as she had. Instead, he was wooden, harsh. "The Cassandra system harnesses the vast computational, intuitive, visual-aural understanding mechanisms of the human brain."

"Anyone can quote the operations manual, Markus."

"If it's in the manual, it must be true." He smiled weakly. The manual went on to state: *The Cassandra System Primary Interface is a radical breakthrough in intuitive-logical compatibility. The organic component is capable of assimilating and processing aural and visual stimuli at a rate of seventy-eight billion LOC units per second. Fiber sensors utilizing stored grids of the organic synaptic patterns are able to instantly convert non-logical and metalingual comprehension into program coding on an instantaneous basis. The Cassandra System, by virtue of its seamless joining of the best of human intuitive reasoning and electronic rapid processing and rigid logic interpretational matrices, creates a practically limitless functional and adaptive computing environment.*

"Bullshit. You know there are other issues. Moral issues. You're not going to see a Cassandra system in Earthside use. Only in deep space where we're supposed to be immune from outrage. ❖"

"What do you want me to say? ❖ There was nothing that could express what he did feel without also exposing the truth. Not even trying to make Djen understand was worth that risk. ❖ I've used the primary interface in our Cassandra system for better than five years. She's never once acted in any way that was inconsistent with the standard."

He knew this as an immutable fact. He'd looked from every possible angle. He'd hoped and begged and vigorously challenged the cortical repression system. Brett could, should it be necessary, take the entire machine apart and put it together again from the ground up. He had studied the system's specifications in complete detail. He was certain of the things he said.

Because of his bitter certainty, he couldn't leave it there.

"She's never once said she was hungry when her sustenance tubes clogged. She's never complained of cold or heat. Never said she was lonely. Never told me stories about her childhood or made dynamic associations between one event outside the parameters of her programming and another. She's never noticed when I cut my hair. She's a machine, Djen, that's all Cassandra is."

He was not shouting, but he could sense the intensity he lashed toward her. Brett sucked his anger, his frustration--everything that ached inside him--back into the hard, dark place inside him where it belonged. Djen studied him for a few uncomfortable moments. If anything, she seemed reassured by his basic human feeling.

She placed her gloved hand on his arm. "I'm not attacking you. You didn't create the machine."

Not all of it, he thought. Not all of it. I only contributed my fair share.

Sperling Engine Nine, located some thirty-five kilometers south by southeast of Persia station, sat in a wide cleft between two winding juts of native rock. The sharp-spined ridges angled together like a pair of legs, the body of which was buried in the sand, and formed a protective barrier from the wind and the elements and the screaming projectiles the storms of Archae Stoddard frequently produced.

As a structure, Nine looked exactly like the eight which preceded it and the three which followed, all under Persia's maintenance gear. It was squat at the base and square, just short of three meters tall and fashioned out of military grade radiation shielding. The second level was identical in shape, but smaller on a ratio of 1:1.5, meaning that its height was just two meters and its floor area roughly two hundred square. Instead of a scraped steel exterior, this level had louvered vent slats which could be opened to a complete horizontal angle or closed and sealed to approximate air-tightness. The uppermost level was smaller still along the same ratio and it housed only the tremendous bladed fans which propelled up and out the chemical product the engine continually manufactured. Viewed from the exterior, the Sperling Engine resembled a diminutive steel ziggurat spewing offerings of incense to nameless solar gods.

Vernon wheeled the transport in a ponderous arc until the loading hatch faced the circular entry port in Nine's front side. Brett checked his seals a final time, twisted his helmet in his hands to assure himself he was locked and dialed his heat exchange to the maximum setting. The generator strapped to his back growled as the circulator fans kicked in and a flush of hot air circled about his midsection. He began to sweat. The mechanical lurch of his generator seemed to push him from behind toward the door, toward Nine and the problems presented there.

He crouched forward, moving bent at the waist, crab-like, so as not to damage his equipment against the flat metal roof. He cleared his throat to activate the vocal pick-ups which pressed against his larynx.

"Exit check. I'm ready to breach the hatch."

"I'm coming," Ilam said. "With you in a moment."

"Locked for depressurization," Vernon confirmed.

Djen said nothing, but she shifted the insulated satchel with her portable computer from the right hand to her left. She nodded her readiness. Brett grasped the handle on the inside of the door and gave it a hearty tug. The seal broke and a rush of air nearly pulled him from his feet as the internal pressure spumed through the crack. Immediately, he pushed up with his shoulder and down with his legs, expanding the hatch like a pair of jaws. He stepped down from the transport and stood for the first time in weeks among the shifting sands of Archae Stoddard. Once Djen and Ilam had stumbled after him, he re-sealed the hatch and slapped his hand against the side of the transport.

"Keep her idling, Vernon. We shouldn't be but a couple of hours."

"Of course, Commander," he said, laughing. "Can't listen to the radio unless she's idling."

"Right. Keep that volume down and give us regular check-ins at quarter hours. Hold an eye out, if not an ear, for the weather extrapolations. Is that understood?"

"Aye, sir."

He turned toward the port entry to Nine and flexed his hands. In the frigid air, the condensation which had gathered on his e-suit during the transition from the MUT's internal atmosphere to the outside had frozen. Brett shook his arms, bent his knees and the crystalline ice fell from him like localized hail.

Ilam had the engine's access port open a moment later, and Brett jogged to join them inside. As Djen keyed the internal generator and brought the lights sputtering to life, Ilam sealed the outer airlock, normalized the pressure and went to work on the inner seal. Within a few seconds, the lights flashed green and the second lock door hissed open.

Ilam checked the numbers on the display just inside. "Atmospheric mix is good. Air temperature is balmy. Internal pressure is a bit low, but if you don't mind a pop or two in the ears, you may decloak at your leisure."

"You make that sound so sexy," Djen said as she set her satchel on a workbench in front of them.

"Don't be fooled," Brett said. "The accent is the only charm he's got. The rest of

him is just as Irish, and I mean that only in the ethnic slurring sense."

"That is a pernicious generalization, Commander, and an outright lie as well. I resent it on behalf of my entire homeland and heritage."

Brett removed his helmet. He offered Djen a wink. "You know, of course, that he was born in Boston. His mother's an Afghan woman. His father's lineage is--ah--questionable."

"Deception!"

Djen laughed prettily, fogging the inside of her faceplate. "Lesson to you, Ilam. Never cross a man who has intimate access to your personnel file."

Ilam continued to grumble, though most of it was good natured enough. The three of them sat on the bench and shed their suits. Brett oriented himself rapidly. A narrow corridor ran the length of wall, then turned at the corner and disappeared. His memory of the generic Engine construction plans said it circumscribed the entire level. The center of level one was an orderly design of supply closets, access hatches and workstation alcoves. On the other side of the wall at his back was a vast bank of electronics mounted on skeletal wire racks which reached all the way to the ceiling. And not the precise and delicate silicon-hybrid chips of modern processing, but older, heavier components. More reliable, he was told, less susceptible to fluctuations in temperature and air pressure. Toward the left rear corner would be the environmental controls, the generators, the atmospheric surpluses which supplied the engine's biosphere. The right rear section housed the communications hub, linked by hand-strewn underground cable to the comm array at Persia. Programming arrived by cable as a batch of instruction signals from Persia, was translated and applied via the local computing network, then relayed upstairs to the second level, where the real work of the Sperling Engine occurred.

Brett said, "What do you want me to do?"

Djen arched a critical eyebrow at him. "Well. Let's see, Commander. Vernon drove. Ilam is going to check the mechanicals on the blower. I'm going up to two to directly upload the latest command sequence. You can feel free to sit on your thumbs if you want."

"Certainly," Ilam agreed. "Sit and twiddle. With all due respect, of course."

Brett stared him down. "If it's all the same, I think I'll assist in the upload. It's a good excuse to check the screen integrity. Ilam, bring the production cycle down, will you? Make sure you get a good seal on those vents."

"Aye. Feel free to take my word for it when I say it's all clear. Don't bother to check your environmentals. I'm imminently trustworthy." He wandered off toward the programming station around the corner to the left.

Brett started down the corridor the other direction, and Djen quickly fell in beside him. They turned into a small doorway a few meters from the corner and clanged up the iron staircase to the second level. Here was another pressure door, and Brett waited for the click of release and green light on its panel before turning the latch. The door was uncomfortably chilly to his touch.

Djen took his other hand, wrestled in her satchel and came out with a heavy flashlight. She thrust it into his grip.

"Be useful," she said. "Point that where I tell you."

Brett switched on the light, soaking their feet in a pool of illumination, then pushed open the door. He immediately tripped over the raised frame and nearly fell flat on his face.

"Lights would have been a good idea," he grouched.

"The nanos don't need them. It's a waste of resources," she responded. Her breath came out in a plume of white steam.

"I'm going to check the environmentals," Brett said.

"Don't do that. As long as it's above freezing, the equipment functions without problems. It's probably still a good two eighty to three hundred K in here. Only chilly to the non-mechanized." She strode past him. "I'm going to need that light."

Djen shimmied past him into the low ceilinged room and pressed her back against the exterior wall. She squirmed around the maze of ducts and pipework which hung at irregular intervals in her path. This second level was split into quarters, each square housing a metal cabinet which stretched nearly from floor to ceiling. A pair of narrow perpendicular paths ran between the uninspiring

production units.

The Sperling Engine inhaled atmospheric components from the louvered hatches through a complex network of ducts and filtered them through a stunning and intricate series of micromesh screens enclosed within the four cabinet components. Each screen consisted of billions of nanomech units strung head to tail along interlaced silicon-fiber wires.

The result was a faintly iridescent panel of nano-impregnated mesh several thousand layers thick. The nanomech units grasped the particles which whizzed down the gullet of the ducts, analyzed the chemical and molecular components of their catch, and recrafted carbon dioxide to ozone, ammonia to nitrogen. They then released the newly formed compound--identified and scanned by a thousand additional lines of quality control--up through a central outflow pipe, into the third level blowers, and out again into the atmosphere.

The whirl and clangor of the fans which drew the air in through the louvers and into the cabinets was normally a physically impressive experience--they could vibrate a man's teeth even through his e-suit. But the level was silent now except for the sound of their breathing and the clump of their bootheels. Which was good, Brett thought, given the fact that the engine had been disabled and anything he might have heard otherwise would have indicated something akin to a catastrophic failure of the seals that currently kept the toxic atmosphere outside.

Djen had reached the machine in the far corner by crawling under the gamut of intake pipes, and seated herself at the master control unit's workstation. Here there was a flatscreen monitor embedded in the cabinet's front panel and a retractable shelf for the keyboard. "Come hold my portable," Djen said. Her voice quavered in the shadows, as though her lips trembled. "And the flashlight. Let's get this done."

Brett made his way with some difficulty and shortly stood next to her with the portable propped on his forearms and the flashlight cocked so it illuminated the keyboard. Djen fished a data cord out of her satchel. She plugged one end into the output jack in the rear of the portable and the other into one of the cabinet's several upload ports. A series of icons, graphs and textual displays rattled across the monitor and Djen leaned in, studying the spill of data.

Brett couldn't see what she did when she began to tap rapidly on the portable's keypad. It took both of his hands just to hold the unit steady. He did notice that she was breathing hard, and that seemed to be a less than positive sign.

"What's the matter?" he asked.

"These numbers are all wrong. They've got to be." Djen chewed the inside of her lip.

"Details, please."

She slapped a few more keys, cursed under her breath. "Take a look at that graph."

Brett turned the display so he could read it. "What is this? A decreasing productivity curve. . .um. That's a sharp decline at the end. Okay, that's a total system outage." He peered uncertainly at the small text. "What's the timeline on these numbers."

"Twelve hours."

He raised his head sharply. "What?"

"That curve is the productivity drop in the last twelve hours. The top of the line is the unit reading last night, about an hour after the daily reports. The bottom of the line is the census at the end of the last hour. They're not making the wrong thing anymore--they're not making anything at all."

"So this doesn't reflect that we just shut down the engine ourselves."

"No. Nine was just over seven percent functional when we arrived. You'll notice the big spikes, up and down, over the last few hours before the final drop--that's the system stuttering, trying to maintain production and encountering critical errors."

"This doesn't look like a programming error."

Djen chewed her lip, clearly unhappy. "I'd say not. It's more like a complete engine failure. Nine would have been dead in another fifteen minutes if we hadn't shut it down ourselves."

He snapped the portable closed. "Where do we start?"

"Might as well look at the screens first, since we're here, though this is a pretty radical meltdown for screen failure. They wouldn't all fail at once. Then we'll check communications, see if the station got a bad batch command or misinterpreted one of last night's attempts at reprogramming. Then transistors and processors, fuses and electronics, power surge and maintenance records. Top to bottom, as they say."

"Is there anything Vernon can do to help?" He was thinking about the weather.

"Can he drive back to Persia and get me half a dozen technicians?"

Brett scowled. "Funny. Can he help with any of the mechanicals?"

"Only if Ilam thinks it won't slow down his diagnostics. First, let's get Ilam up here to help scrub the screens. We'll have a better idea after that of the steps which need to be taken, and how much we might need Vernon."

"I'll help with your diagnostics."

"You can hold the flashlight, lackey."

"Right."

"And what the fuck is that?" Ilam asked, scratching at his chin in bewilderment. He had joined them on the second level when Djen summoned him. He had spent the requisite several moments complaining about the cold, threatening to retrieve his e-suit, then finally settling in alongside Brett to wrestle the access panel off the first of the four Sperling components.

Brett didn't have an immediate answer to his question. They had rolled out the first bank of screens along its rigid guidewheel. The spool was a wire-frame bracket consisting of a series of distinct bars along the top from which the screens were suspended. Along the bottom of the spool mechanism ran four parallel troughs into which the screen frames snapped.

The cumulative effect was a bank of screens four across and four deep per spool. The top bars were dotted at regular intervals with amber-golden electrical studs which matched parallel contact ports inside the access panel when the mechanism was in its locked position.

Each cabinet held four lower access panels housing additional spools. A separate panel placed roughly at chin height held a fifth spool rotated ninety degrees so that it sat perpendicular to the lower spools. This was known as the Control Spool, and its primary function was analysis of the molecular packets produced by the spools below. Passed units exited the Control Spool and were sucked directly into the output chamber, which blew them as ejecta into the blower canals on the third level.

The first spool did not take minute examination, even under the poor illumination of the flashlight. A long, rapier thin slice had penetrated the entire bank of screens, both frame to frame and all the way through the four sets of screens, severing the silicon-fiber cables. Brett drew on a pair of gloves offered to him from Djen out of her satchel and tugged at the edges of the faintly iridescent micromesh fabric.

Djen said, "That explains the system failure, at least. The Engine is programmed to shutdown and periodically attempt a cold reboot when its production capacity falls below ten percent of the target. It assumes there's a mechanical problem."

"Good guess on its part," Ilam said.

"It certainly explains the production graph we saw earlier. About the only thing working efficiently was the intake fans."

"A rock?" Brett suggested. Without precision magnification goggles, he wasn't able to closely analyze the contours of the tear line for more details. "Something that slipped through the vent filters and whanged around inside the component?"

But Djen shook her head. "The vents are double filtered with titanium micromesh only slightly larger than the screen fabric. They snag anything above a certain atomic diameter, including most dust particles. Even assuming something slipped through a hole in the first filter, the intake fans couldn't have propelled it with enough velocity to get it through the second bank of filters, let alone enough to ricochet inside the production component quickly enough to do that much damage."

Ilam reached his hand out, nearly touched the screen himself, then drew back and pointed at the tear from a distance. "Those are fairly regular breaches, more of a slash pattern. A rock would produce more of a ragged punch, don't you think?"

"What about stress breaks?" Brett asked. "That would explain the uniformity of damage."

Again, Djen disagreed. "Spontaneous stress breaks might--very rarely--snap a whole screen like that, but it doesn't explain the damage to the entire spool."

"Unless the whole component was under stress. At least in theory."

"Then we would've received automated notification. The mechanical functioning of the engine was all within normal parameters on last check. The fan rotations were uniform. The blower was laboring, yes, but that's a separate electrical system. It wouldn't have stressed the production components."

"Except the engine kept shutting down and attempting a restart." That made a reasonable amount of sense. Brett added, "What are the surge capacities of the fiber lines?"

"It's a computer system reboot, Markus, not like turning the power on and off."

"But worst case scenario? Let's assume an unrelated but simultaneous set of

circumstances."

"The components are monitored constantly both internally and remotely. We specifically track electrical surges as part of our maintenance logs. If there were surges, we would have known about them yesterday at the latest."

Brett cursed aimlessly. "What are the other options?"

Ilam grinned. "Rowdy kid with a sharp stick and poor parental guidance?"

Djen crossed her arms over her chest, and tapped her lip. "It could be some kind of radical programming error. Interpretative error, I should say. The nanomech groups attacked the silicon-fiber threads."

"They're not independently aggressive." Brett pointed out.

"Unless programmed that way. And they're not intentionally aggressive, either. I don't mean 'attack' in that way. If they misunderstood the last instruction batch, they might have mistaken the cable as a viable source of raw material. Understand, they're grappling with resources at a molecular level, and they're doing it extremely rapidly. Density of matter between the air and the cable isn't going to register as noticeably inconsistent. They're not designed to compile task difficulty as a criteria for performance."

"Can you prove that was a factor with any precision?" It wasn't an explanation for engine failure Brett had ever encountered. The idea that the mechs could sabotage their own environment was not one he liked to consider. Definitely not one he could report without certain evidence.

"It will take a few days, and a couple of the programmers away from other projects. We'll have to take the screens with us for analysis."

Markus calculated the potential waste of man-hours and sighed. "Does it seem to explain the symptoms Nine has manifested to this point? The diminished production issue?"

Djen nodded, but slowly. She sounded distant, as though she was working out the logic even as she spoke. "The diminished production we've seen fits with a hypothesis of increased processing time to convert the micro-fibers to atmospheric components. The nanomechs would burn more than a few extra

cycles trying to complete the job before realizing it was impossible."

Brett continued, "Does this explanation account for the original problem?"

"After the initial failure to convert the cables, the component as a whole would have assigned fault to the new batch commands and would have reverted to the last viable programming.❖"

❖But it kept at the fibers,❖ Ilam pointed out.

Djen shrugged at his objection. ❖The units are designed to produce--to produce anything that fits the mission's definition of valuable--not to care about the consistency of its raw materials. Why it specifically went after the silicon fibers isn't clear yet."

"Then how does our hypothesis explain the screen integrity failure?" Brett asked.

"Also known as the big gaping holes," Ilam said.

"Basically, the main component manager wouldn't have reverted to old programming in all cases. If we assume the component begins to figure out that this assigned job isn't working, meaning that the materials used in the conversion aren't correct or the conversion itself is taking too long, it rethinks the received logic. If it can't solve that problem, it doesn't ask for our help, it just reverts to something it does know works. We get paid to notice the problem and fix it.

"My guess is that the component went partially with what it perceived as sound instructions and partially with the troublesome instructions. We noticed last night that the working spools were producing the wrong chemicals, because the spools which are broken right now were trying like hell to make the right stuff, but not making enough headway for their production to register.❖"

"Bottom line is that the component did what it's designed to do. It doesn't have the sensors to register that it's in the middle of devouring its own screens, so it just plugs ahead until it's too late to pull back. Then it just shuts down, as we've seen. Similarly, given that each nanomech unit has essentially the same processing capacities and the programming pulse emits consistently from the top of the screen to the bottom, it's reasonable that corresponding units on each line are going to snap the fiber cable at approximately the same place. So that probably explains your slash pattern, too."

Ilam glanced up at Brett and shrugged. "Don't look at me, Commander. I'm just a mechanical. If it can't be fixed with a screwdriver or a torque wrench, I'm out of my element. Simple enough supposition to test, though, if you just want my opinion."

Brett shoved the damaged spool back along its guidewheel track. "Let's access the other side. If the explanation holds, those spools are on different production sequences and should be fine."

Except they weren't. Similar tears, some straight, some ragged, marred the remaining spools. They expanded their investigation, opening each component and extracting its complete set of spools. Without fail, each was damaged. Any hope Brett harbored that there wasn't something critically--and expensively--wrong with Nine vanished.

Ilam frowned at the last segment of evidence, still protruding from the machine like a sick child's tongue under a doctor's examination.

"I'd like to repeat the bit about the rowdy nipper with the stick," he said.

"I don't get it," Brett said.

Djen rubbed her hands over her shoulders, working at kinks. "I'm starting to agree with Ilam. If I didn't know it was absolutely impossible, I'd say this looked like willful sabotage. There's no other ready explanation."

"There has to be another explanation."

"Not that I can offer without better facilities and an intensive investigation."

Brett started to answer, but he was interrupted by the double tocking click in his earpiece which indicated an incoming message. He held up his hand to Djen and Ilam.

"This is Brett."

"Boss, this is Vernon. Are you hearing me?"

"Very minor static on this end. Go ahead."

"I just got a weather update from Persia. Latest projections have a fast moving bank of wall clouds sweeping in our direction. I don't want to alarm you or make any suggestions which might seem out of line for my rank, but it's starting to look a bit ugly out here. I wouldn't mind too much if you all decided to hurry up so we can get the fuck out."

Brett chewed his lip. "What's the current wind speed?"

"Twenty knots and climbing. It's the climbing part I'm worried about." Vernon forced a chuckle at the end.

"We're on our way. Brett out." He turned on Djen and Ilam. "Grab what you need. The weather's bearing down on us and Vernon says we need to relocate."

Djen peered at him in the dark. "Vernon is getting worried?"

"Shit," Ilam said.

"What's the matter?"

Ilam and Djen exchanged a look of concern. She said, "If you waited for his assessment that the conditions are bad, we're probably already in serious trouble. He has something less than a sane standard of acceptable risk."

The three of them began to move.

7.

Brett stumbled into a sheet of sand on the other side of the exit port. The wind caught him, shoved him to the left and almost tore the screens out of his hand. He set his face to the wind and staggered after Djen toward the MUT. Vernon had remembered to power up the glaring halogen worklamps which ringed the top of the vehicle. It was the only way they would have found him.

He was panting heavily by the time he ascended the steps into the transport cargo bay. Ilam followed immediately behind and snapped the doors closed. Brett sat down and leaned his bundle of screens against the bench between his legs. Djen had taken the time to wrap them in a hard plastic valise for transport, but Brett wondered how effective that would prove given the way he'd flailed from port to transport.

It was not, however, his most pressing concern at the moment. He activated his radio.

"Vernon."

"Yes, boss."

"I understand that I only told you to monitor the weather extrapolations, but I thought it could go unspoken that you'd actually notify us before the weather went totally to hell."

There was a shrug in Vernon's voice. "Just a squall, Chili. I've been out and about in worse. The MUT can handle it."

"It isn't the MUT I'm worried about. What's the proximity of the wall clouds?"

A pause while Vernon checked the latest updates. "About ten kilometers."

"Direction?"

"Um, moving just a few degrees shy of due west to east."

Brett thought suddenly of the Two of Staves. The woman in the storm with a sword in each hand. What had Ritter said that card meant?

"You realize, of course, that puts the storm's leading edge directly between us and home. Have we picked up any shoots?"

"Nothing that's touched the ground." It was Ilam that replied, as if he didn't trust Vernon to give an accurate answer. "But there's a rather nasty series of vortices developing in the lead cell. It appears to smooth out a bit after the first punch."

Djen scowled at Brett through her faceplate. "Ilam, what's the width of that lead cell?"

"About a kilometer."

Brett understood. He'd usurped her command of the mission, and though he had the right to do it, he didn't have adequate reason. Crew safety was Djen's responsibility. He tried to smile an apology to her, but she didn't see it.

"Vernon, how rapidly could you push us through the first wall?" Djen asked.

"Given terrain and current visibility--"

"Assuming that doesn't get worse," Ilam said.

"Right, right. All other conditions staying more or less equal, I could rev the go-getter up to about thirty k and keep her on the road for the most part. Not more than a couple of minutes."

Djen's voice took on a strained quality. "But that's assuming the back end stability remains, correct?"

"Yes, ma'am. And assuming we don't have to dodge any actual tornadoes. Lots of dips and rills where we'd make the contact, but nothing that would tuck something the size of the MUT."

"You're assuming you'd see an actual tornado in time. What's your visibility like up there?"

"Djen, we don't have visibility. I'm naving by instruments and terrain projection. That's included in the earlier computations."

Brett said nothing, but Djen turned her face toward him, her eyes wide. She mouthed the words: *he's willing to drive blind at thirty kilometers per hour*. He resisted the urge to even shake his head. After taking his master's degree, he'd celebrated by flying from upstate New York to Oregon with a friend in a rented late-model Manderwal Skyram. Somewhere over Oklahoma, they'd hit a wall of thunderheads which he was certain would shake them right out of the sky. The pilot, Ray Thornton--dead nearly ten years now from leukemia--had plowed through the worst of the rain and hail and buffeting violence by instruments and three-dim projection. Brett had never climbed aboard a plane that small again.

Djen continued her assessment. "Ilam, tell me again that there haven't been any shoots that have touched the ground."

"Not a one that I can see, but you do understand that I'm looking at the tops of these supercells. I'd have to study the images for some time to confirm that."

"You're hedging."

"I certainly am. As our esteemed Commander frequently says, it only takes one."

At least he hadn't had to be the one to say it.

"We need to find a place to weather the front end of this storm," Djen said finally. "What's the topography offer us in this sector?"

"Nothing on the map," Ilam said. "A few leesides of the ridge as a windbreak, but the storm's going to catch us before long."

"Vernon?"

After a thoughtful moment of silence, he answered. "I was out this way with Ritter and the hydro crew a couple weeks ago checking out a rift uncovered by one of the recent storms. It's a hell of a descent, assuming the sand hasn't filled it in again, but it would give us some cover."

"What's the range?"

"Two k northward. Assuming I can find it again."

"That's thirty-eight degrees north by northeast," Ilam added. Then as explanation, "I did nav log on that expedition. Call me anything you want, but not late with my paperwork. Give me two minutes and I can have a digital update with the geo-pos coordinates."

Djen said, "Get them on the way. Let's go, Vernon."

The transport lurched forward as Vernon engaged the drive train, then shuddered and rumbled to growling, belching life as he shifted from solar batteries to the diesel engine. The acceleration was sharp, and Brett had to hold onto the bench to keep himself from spilling onto the floor as Vernon wheeled in a tight circle and shot them off toward the north. The ride did not smooth out as they continued. Vernon jounced the tri-axle frame over seemingly every obstruction he could find.

Ilam came on over the radio. "I've normalized pressure in your compartment. You can remove your helmets."

Brett said, "I don't think so."

His ears filled with the delicate tinkle of Djen's laughter.

The site Vernon had described was a narrow rift in the planet's surface, barely wide enough for the transport to enter without scraping the sides. The angle of decline was not so much a descent as it was a plunge. The MUT launched out over a rock shelf, seemed to fall forever, then landed hard. Its nose dove sharply and they trundled on with the churning diesel spitting rocks and debris in their wake. Vernon shouted a couple of times as they plummeted headlong down the chute, his voice resonant with pleasure. Brett, who nearly broke his arm trying to keep himself from being tossed on top of Djen, thought seriously about breaching the pilot compartment and throttling him, but the ride was over before he made up his mind. He sighed his relief as they stopped and put his face against the round plastisheen window by the loading hatch.

They were a good ten meters below the surface, and perpendicular to the wind so that the whipping columns of sand didn't hinder his vision. The rift widened substantially here at the bottom. There was enough room that he could get the doors open if he chose. The brownish rock walls of the defile were jagged and steep as though chewed by harsh winds. The stone had a porous look to it. Igneous, he thought. Old volcanic slabs pitted by sand, then buried beneath it.

"What did you say brought Ritter down here?" Brett asked into his radio.

"After one of the recent storms, Mission Comm HQ transmitted a bundle of images detailing recently uncovered topographical features," Ilam answered. "There has been some speculation that Archae Stoddard may be harboring some form of aquifer system in this general area. Those are assgasp projections, not our own ideas."

The Archae Stoddard Global Survey Project (ASGSP) was an ongoing low orbital satellite initiative which mapped the planet's surface using a variety of radar signals and depth soundings and transmitted updated information to each of the mission sites. It wasn't uncommon for Mission Comm HQ over at Gobi Station to pass assignments of this type directly along to remote site personnel. Xenohydrologists like Ritter tended to draw their workload much more from Gobi than they did from their own station commanders.

The pursuit of water forms was an ongoing critical investigation. The Sperling Engines hadn't been designed to produce water vapor with its atomic jiggling at the nano level. There was some concern that repeated exposure to water vapor

would eventually rust the machine components. It was preferable to find and secure other sources of liquid water, even in relative trace amounts. The probable location and existence of an aquifer system on Archae Stoddard, much like the aquifer system on Mars in the forties, had been a fount of much conjecture and disagreement over the last few years. More than one political and scholarly career was staked to its eventual discovery.

"I'm assuming they didn't find anything, because I *know* a discovery of that magnitude would have come across my desk before it was transmitted to Mission Comm," Brett said.

Ilam chuckled. "I'm sure the analysis is still pending, Chili. You would be the first to be told."

"I wouldn't worry," Djen added. "The aquifer system on Mars wasn't discovered above the three kilometer depth. This is just a scratch on the surface."

"Ritter didn't take us nearly that deep before gathering his soil samples," Ilam said. "There's a series of what seem to be surface erupted geothermal vents about a hundred meters on down this gully. Quite pleasant there and about, actually, if you don't mind the sulfur residue. The temperature at the one kilometer level climbed upward of freezing."

Brett craned his neck to watch the ragged strip of sky above the canyon's rim. He couldn't see anything clearly beyond the blustering scree of sand and dust, but there was thunder in the clouds which rattled the transport. The wind shrieked as it stumbled over the crevice.

"If Ritter was taking samples, it must be a better situation than the Mars project," he said. "What's the update on the weather system?"

"Nasty, and getting worse," Ilam said. "The leading edge is about sixty kilometers long. It should be passing over us in the next five to ten minutes. Increasing instability toward the fringes. I'd imagine she'll be putting down shoots before too long, just in case you were curious."

"What are the wind speeds?"

"Ground Doppler beacons are reading at sixty knots with gusts to seventy four in advance of the wall. I don't have data from inside the supercell at this point."

"It's getting stronger," Djen said quietly.

Brett looked at her. The transport was a massively heavy piece of equipment, but a cull of straight line winds slicing down the crevice could pick them up and fling them easily enough, especially at wind speeds approaching one hundred knots. They weren't there yet, but could be in a very short period of time. And that was without the frequent emergence of tornadoes.

He lifted his hands toward her. "It's your call. I just hold the flashlight."

"Doppler beacon at the one kilometer mark from our location just registered winds at one seventy plus knots," Ilam said suddenly, his voice sharp.

"There's a rope on the ground," Djen said.

"Satellite radar scan is updating. . .hold on." Ilam breathed heavily in their ears, short and rapid gasps. "Multivortex structure by initial analysis. Probably half a kilometer in diameter. It's slow moving, but wending this way and chewing up terrain as it comes. This looks like a big one, Djen."

"What do we need to descend that vent, Ilam?"

"Just a good pair of shoes. The angle is gradual, no more than twenty degrees for the first thousand meters. That should be plenty far enough. The MUT would fit into the initial cavern, but she'll not make the turn."

Djen climbed to her feet. "We're evacuating the transport. Shutdown the nonessential systems and get back here. Bring the short range radio and the locator beacons. We'll weather the storm in the vent." She turned her face to Brett, and her eyes were hard. "There are emergency tubes of air for the suits in the locker behind you. Grab those. And the arclights off the back panel. I want a coil of tension cable and the suit patch kit as well. There's no reason to take any chances."

"Will do, ma'am," Brett said.

A moment later, Vernon and Ilam tumbled through the door from the cockpit and set to work on the exit hatch.

The walls of the vent cavern were rugged and dark, almost ebony. Brett played one of the lamps along the surface and the rock glistened from the small crystalline structures embedded in its surface. The floor was stony and strewn with debris--sand, pebbles, larger shards of rock--but as Ilam had promised, the slope was gentle. Their blazing lights made it easy to avoid the occasional jutting rock or outstretched shelf. Despite the presence of the patch kit, they were all wary of incidental contact with any hard surface. The thin and frigid atmosphere could do considerable damage to a biological organism before repairs could be made.

The wind whistled furiously outside the mouth of the cavern and they moved in about a hundred meters in order to hear one another more clearly, even over their e-suit radios. The vent narrowed as they went farther in. Where they stopped, the sides had come together at a distance of ten meters and seemed to hold that as far down the tunnel as they could see. The walls became smoother down the shaft, bored a rippling, concave pattern by ancient rills of magma.

Djen called them to a halt, and they stood toward the middle of the floor, exchanging looks between the dark maw of the tunnel and the brighter maw of the entrance. Vernon dropped the hard plastic case which held the radio and sat on it.

"I'm getting hungry," he said.

"Don't you even start," Ilam responded. "I saw those chocolate wrappers on the dash. At least you've had something since breakfast."

"I have an active metabolism."

"That's enough," Djen snapped. "The storm shouldn't last more than a few minutes. We'll be back at the station in time for a late lunch."

Brett turned to Ilam. "Is that CO₂ crystallization on the walls?"

Ilam looked around. "Silicate ring structure, not dissimilar to quartz. They're not frozen, they're rocks, or mineral structures, to be precise. At least as far as I can tell. I'm not a geologist, you know. I just maintain the equipment and write down what they tell me."

"It just seems awfully dry here."

"I'm not a hydrologist, either."

Brett contained a burst of frustration. "But I assume it becomes moist farther along, right? Ritter took his samples from the one kilometer depth, so there must have been moisture. Dampness, something. The temperature surged above freezing."

"There weren't pools of mud, if that's what you mean." Ilam began to sound annoyed.

"But if you didn't detect at least concentrations of water vapor, why did he stop? Why did Ritter take his samples from that point instead of deeper along, beyond the mean isothermal line?" Brett went on, no longer talking specifically to Ilam. He was thinking out loud. "If there was moisture to be found, it would be below the 275 Kelvin marker. He didn't need to look for vapor, because we know we've got vapor, it's just unstable because of the low pressure. But his samples would have still been frozen and may have been gaseous when they did freeze. Why didn't he go on?"

"Because he tore his suit," Ilam said. "He tripped over his own boots and gashed the elbow of his suit on a rock. Just the outer layer, but not something you'd want to risk, not when you could reschedule the site and come back tomorrow."

"He could have patched it."

"Not when the patch kit was in the MUT a kilometer up."

"But he didn't come back, either."

"That we know of. Maybe he brought Alden on the next go. Maybe one of the hydros kept the log. Maybe he was satisfied with his samples and decided not to return."

Brett shook his head. It bothered him. Something bothered him, but he couldn't put a coherency to it that would make it tangible.

Djen said, "If he was satisfied, his results would have been in the daily reports one way or the other. They weren't."

Ilam shrugged. "Then he's still doing analysis."

"But what kind of analysis would take that long?" Brett barked. He scowled at Ilam before he could reply. "I know. You're not a hydrologist. I'm just trying to parse this."

Outside the vent, the wind roared. A blast of ochre dust and sand roiled down the mouth of the cavern, put a halo around the lights they held. The storm seemed to grind above them with a vibration they could feel through the ground and register as a pulse of air as the pressure shifted toward the tornado.

"This dust is going to clog our heat unit exhaust if it doesn't settle," Djen said. There was something sly in her tone that made Brett glance up and meet her eyes. "I'd say that personnel safety parameters dictate we should seek better shelter. This storm could sweep on for another half an hour easily, and conditions will only get worse. Deeper in should take care of it, I'd think."

"Just to be safe, of course." Ilam muttered. "Not to meddle in someone else's work. Not to question the performance or motivation of an immanently qualified professional. And you just said the storm should abate in a few minutes."

Djen smiled. "The original was an incorrect assessment."

Vernon bounced to his feet. "Ritter's a constipated asshole. Let's get him in trouble."

"This isn't about Ritter or about getting anyone in trouble," Brett said. "I'm curious about what he found or what convinced him that further exploration wasn't necessary."

"Or you could read his reports when he turns them in," Ilam said.

"I don't have his reports. I do have his geothermal vent and time on my hands." Brett pointed his light down the tunnel. The darkness was thick, almost oily in its consistency. It seemed to slink away from the glare. "It gives us something to do other than sit here. We'll trundle down to the one k level. If it doesn't look interesting, we'll trundle back."

Brett walked off down the tunnel leaving the others to follow after him.

As he walked, he thought about how small she had seemed to him that first time. Memory or exertion or possibly even the dry, faintly stale air circulating inside his suit made him thirsty and he sucked vigorously on the small tube near his mouth, taking a drink from the suit's reservoir of now tepid water.

It had been autumn then, and the trees had turned from golden and red and hummingbird yellow to crispy brown. Many of the leaves had fallen and they crunched like insectile spines beneath his feet as he tiptoed across the wide field beneath a sparkling, starlit sky. He could see his breath in the air when he paused long enough that it steamed out in front of him. But he didn't pause often. He hurried over the rolling hills of upstate New York from the old logging road where he had parked his car. Then a running leap so he could catch the top of the stone wall with his hands and scramble over. He fell more than leapt to the other side, rolling topsy-turvy on the grass, where he ended finally at her feet, staring up into her shadow with the points of the stars haloed about her head. She shushed him, though she was the one giggling, and helped him to his feet.

They rippled hand in hand through the denuded orchard her father kept here, really little more than a handful of small trees badly in need of attention. It was a small house set against a copse of dark, towering trees to which she led him. The light in the sitting room cast a shimmering square of illumination out into the yard. The front door of the screened porch banged idly in the cool breeze. With her finger to her lips, Emily led him beneath the glowing window where he could see her father seated at the kitchen table drinking beer over the newspaper. They continued around the back side of the house where she had bribed the country mongrel dog with leftover pork bones, and where she had set an old wash basin on the ground beneath an open window. She stepped up, attempted to slip through, but stuck herself half in, half out so that he had to put his hands against her firm bottom and push her through. He never knew if she had really been stuck there, or if it had been another part of the game to which she'd enticed him. A reason for him to put his hands on her.

He followed breathlessly, up and in, barely missing the lamp with his foot as he tumbled. Inside, the house smelled like plums, sweet and purple. The carpet in her room was thinning, the walls a faded gold pattern indiscernible in the murk. She had told him that they had fallen on hard times, her parents, that is, when she was just a child. Progressively smaller and fewer houses until some form of financial stasis had been established, leaving them with the family home in

Savannah and this tumbledown farmhouse usually reserved for summer vacations and mid-autumn escapes. Except this year and the next and as many as it took afterwards, the order would be reversed because her father could manage it and she had accepted the scholarship here rather than in-state tuition at Georgia Tech.

The door was locked, and, she assured him, her father's shotgun unloaded and the shells hidden in the flour pot. Emily shed her flowing pale robe and was bare underneath. Moonlight through the window struck her pale skin as white as marble. Her strawberry hair shone a glimmering silver and her crisp blue eyes were liquid and round. Between her legs was a tangle of darkness, a shadow he couldn't penetrate. He stood there, silent and awestruck, only staring at her while she let him. Then she vanished, backward, out of the light and into the great, creaking bed in the corner.

"Quickly," she whispered to him.

And he was anything but quick. He stumbled out of his pants, had to catch himself on the corner of the bed before he broke his neck. He forgot to remove his shoes first and had to start fresh again. His shirt caught around his shoulders and he actually heard the fabric tear when he strained too hard against it. He spent more than a second debating whether or not he should remove his socks.

But finally he was there; he was beneath the smothering comforter with his head on her stuffed feather pillows. She pressed wholly against him, almost pushing him off onto the floor again. She was warm. Her entire body from toes to forehead was a blast of dry and coiled heat. His body felt icy, prickled with gooseflesh. Because he could *feel* her. All of her, naked and precious and beautiful pressed against his chest, his thighs, his hips. She was light in his arms, and though he had held her on a number of occasions, it surprised him. She was no heavier than a being made of ether, it seemed to him now. The weight of a pleasant dream. Then she rolled onto her back with her hands laced about his neck, pulled him over her so that he thought he would crush her beneath him.

They were both pleased when he didn't.

Sometime before dawn he awoke beside her. Her small, warm hand touched the back of his neck. His large and clumsy one occluded the mound of her small, firm breast. He watched her in the first light, breathing through her nose so that

her nostrils quivered. He gathered his clothes a short time after and was gone the way he had come before she woke.

Plunging forward into the vivid darkness of the vent shaft, Brett could almost remember the way Emily had smelled to him that morning. Fresh and warm, faintly sweet, like the crust of a blackberry pie when it's nearly done baking. She had been angry with him later, when they'd crossed paths in the quad outside the chemistry building. He on his way to a lit class; she sliding toward linguistics.

_You didn't wake me. _

_You were sleeping so soundly. _

_Next time, you wake me to kiss me goodbye. _

That rapid exchange, hardly more than three sentences sealed with a peck and a jog toward different buildings, had nearly leveled him.

Next time. She'd said, *next time.*

Djen's voice spoke in his ear. "Slow down, Commander. You're getting too far ahead. It's becoming dangerous."

Ilam's wheezing agreement. "I've already passed my bleeding physical exam for the month."

Brett slowed to wait for them, but didn't stop. He must have been sailing. His feet hurt from slapping against the exposed rock of the tunnel floor. There wasn't much help for it. The vent had just enough decline to it that he leaned back against it, which meant his feet had to keep him at some reasonable rate of descent so he didn't pitch forward and roll to the bottom, wherever that might be. That meant they tended to flap down in a way that wasn't entirely healthy for small and delicate bones.

He consulted the ambient thermometer readout on his suit. An amber display slid into view in the upper corner of his faceplate. Almost 272 K. It was getting positively toasty, just as Ilam had said. It was also silent down here. He couldn't say how far they had come, but his chrono told him he'd been struggling along for nearly half an hour with the bubbled, stony floor and ducking the occasional razor sharp outcrop. No sand from the surface carried this far, and for all he

could detect, the raging Archae Stoddard storms that would have brought it had vanished as well. The only sound in his ears was his own breath; Ilam or Vernon's rare curse as they stumbled.

"Brett," Djen said.

He stopped, shone his light a bit further ahead, then turned back to his companions. Ilam and Djen stooped over a space in the floor while Vernon lit a patch at their feet with his light. Brett strode back to them.

Ilam pointed. "See these?"

There were a series of small holes in the ground, each roughly a finger-width, excavated in a circular pattern. Brett had walked right over them without noticing.

"Ritter's samples," Djen said. She tested the surface with her gloves by pinching at the tip of a frozen stone wave. The edge crumbled readily enough and she sifted it between her fingers. It had the consistency of charcoal, Brett thought.

"So, why here?" he asked. "It looks just like the last hundred meters and the next hundred meters. We're just above the freezing point at this level."

"Dry as an old bone," Vernon said.

"We don't have the equipment for humidity measurements," Djen said. "Maybe there's a trace vapor reading we can't detect."

"Then why didn't he go further? That would make sense for a first set of cores, but not for an only set, not with the vent wide open and waiting in front of us." Brett straightened and panned his light a full circle about them. "Unless he had a worse malfunction with his suit than the tear in the outer lining. Maybe his air was going bad and he didn't want to alarm anyone. Something, anything that might have been out of the ordinary."

Djen pushed herself to her feet and matched the beam of his light down the corridor ahead. "Maybe we should do what he didn't? We've got the air. It might be interesting."

"It hasn't been interesting so far," Ilam said. "And you said down to one

kilometer and back up again. We're here. We saw nothing curious. Now we can go."

"What's wrong with you?" Djen asked, turning on him with her light. Ilam flinched away from the glare, held up his hand to shield his eyes.

"Nothing."

"That's bullshit, Ilam. You've been practically out of your suit since we started down here."

He lowered his face toward the floor. "I have a distaste for the subterranean, if you must know. Never been comfortable in caves; even the chunnel used to give me the willies, though that may have had as much to do with France as a legitimate phobia."

"You don't have any phobias listed in your psych profile," Brett said.

"It isn't a diagnosed condition, Commander. Just an aversion."

Djen took a step closer to him. "You're avoiding the question, Ilam. What are you hiding?"

Ilam's shoulders slumped. He shook his head. "Promise me it won't get out that I've told you this. Promise me, Chili."

"All right."

"Ritter stopped the team here because of a *bad feeling*. Those are his words. The descent had begun to remind him of a negative element he had discerned in the reading of his victory hand from the previous evening. He told me he understood the danger the cards had shown him and that we should turn about to avoid disaster."

Vernon tittered in their ears. "He's flipped. Oh my God, he's totally left the ballpark."

"I beg your pardon," Ilam groused.

"Ritter, you idiot."

Brett said nothing. He exchanged a sharp look with Djen, but only enough to jerk his head back and forth so she wouldn't speak.

"What do we do now?" Djen asked him. "Do you want to go on? To see what there is to see?"

"I'm certain Ritter plans to return and complete his investigation," Ilam offered, but he didn't sound very confident. "He wouldn't just completely neglect a potential water site."

"But he is in trouble, right?" Vernon asked. "Right?"

"What do you want us to do, Markus?" Djen moved between his line of vision and the other two. She seemed to smile at him, but he couldn't tell. The glare of her light hid her features. "This is outside the parameters of the mission I undertook. This is totally your call."

Brett shone his light down the tunnel. It crept on ahead in darkness, appearing just the same as it had the last hundred meters and the hundred before. If Ritter had a reason for stopping here rather than proceeding, he would answer for it. Brett would give him the benefit of his expertise for now.

He said, "We go up."

8.

It was good to be back home. Good to be back at Persia with its bright lights and its buzzers and sounds and mumbles of conversation that didn't come vicariously through earphones. Good to breathe quasi-fresh air and not have to worry about bursting like a grape if he cut himself on anything sharp. It was afternoon, getting on toward evening. The storm had subsided as the extrapolations had predicted, but Archae Stoddard was overhung by leaden, gray clouds. He wondered if they would see the sun tomorrow, or even the moons tonight. Despite his five years here, despite the fact that a clear night meant in many cases the loss or expulsion of critical volatiles into space, Brett was still awed by the starlit sky, the view of an alien solar system from the surface of a non-terrestrial rock, the unique view of this spiral arm of the galaxy rolling past in milky bands of gossamer light.

But at the moment, Brett was nowhere near a window. He was buried four levels

down from the obs deck in his office below multiple levels of manufactured steel framing and behind untold stacks of paper. Brett sat at his desk. Ashburn stood across from him, a sheaf of papers clutched in his hand and a sour expression on his face.

"I ran every diagnostic I know and came up with nothing. She's firing on all cylinders as far as I can tell. Simple commands, complex codings, multiple system simulations--you name it, I tried it. She's as quick and powerful as she was the day she came out of the box as far as I can tell. If anything, she's improved."

Brett folded his hands together. She was not improved, but it wasn't a point he would argue with Ashburn. "Did you run a check on the hardware components?"

"James and I manually verified almost five kilometers of fiber optic line from jack to sensor. No breaks, no wear, no nothing, just like Cassandra is reporting."

"So where does that leave us?"

"Either with a single line of bad code in the multiple billions she's got both from us and from external agencies, or knee deep in little green men. I couldn't find evidence of either."

"The environmentals stayed constant?"

"Not a peep."

Brett sighed. "Then we assume she's wrong for the moment. Keep the atmospheric monitor routine running indefinitely until we can get more evidence, but otherwise run all systems as normal. We'll hear quickly enough if she starts spitting out bad data."

Ashburn frowned and crossed his arms over his chest. "And what if she keeps up with the security notifications?"

"Ignore them."

The sec-o shifted uneasily, and Brett understood. "I know that runs contrary to your training. If it makes you feel better, you can run down each of her reports and file the paperwork saying she's mistaken. You'll want to keep the reports she

generates, anyway, so we can more efficiently track the problem. No one is going to leave you hanging in the wind on this, Ashburn."

Ashburn nodded and held out the papers in his hand. "These are the diagnostic results. You want them for your file?"

"What do you think?"

Ashburn grinned. "I'd guess not. Look, I'm going to get out of your way. I promised Doc Liston I'd run down to medical and check his containment protocols."

"That's not your job."

"Yeah, but I know a think or two about seals. It's peripheral to station security, so I've educated myself and become pretty handy in my own way. Besides, this is just double checking his work. He's worried about Tappen."

Brett nodded. "Meningitis."

"It's still early and he doesn't have the results to back it yet, but he's thinking it might be bacteriological. Dangerous shit if it gets into circulation. Tappen wouldn't be the only one down before we could get a handle on it."

Brett straightened in his chair. "You don't think--"

"No. I checked for that. *Streptococcus pneumoniae*, *Neisseria meningitidis*, *Haemophilus influenzae*. Scanned them all, and a couple more the doctor suggested. We don't have a meningitis causing bacteria roaming around the station tripping the sensors. Cassandra can detect the most common and she filters for them, though she does report the results to Liston. You see what I'm saying."

"It was a thought."

"Already covered by better men and better minds, Chili."

He laughed and waved Ashburn out the door. "Get out of here, and send Djen in on your way. Tell Tappen I'll stop in either later this evening or in the morning. Bring him flowers or something."

Ashburn let himself out and Brett turned to his keypad to retrieve the day's messages. His mail scrolled down the screen in amber letters, waiting to be opened. At the bottom was a single line in all caps, signed with Djen's terminal address.

MEET ME IN THE ARBORETUM. IT'S YOUR TURN TO BRING THE
COFFEE. M

He left at once.

She sat on the bench they usually occupied for the daily briefing. Brett handed her one of the steaming cups he'd grabbed in the commissary on his way and she smiled gratefully as she took it.

"What's this about?" he asked.

"What are you going to do about Ritter?"

Brett leaned back and exhaled slowly. "I'm going to talk to him. I'm going to get his side of the story before I jump to any conclusions. You should be doing the same thing."

"I didn't want to speak in front of Ilam. Not that I don't trust him in most things, but given his relationship with Ritter. . ."

"And given the fact that they're confederates in that damned game, you assumed he would get to Ritter before I did so he could come up with a reasonable excuse that didn't involve bad vibrations and straight out superstition." Brett sipped at his coffee. This wasn't a conversation he had wanted to have. "What did you want to tell me? I'll keep it just between us, if that's what you want."

"I don't need you to do that. I can look after myself."

He winced. "I know."

"Then why did you offer?"

"Because I take it as my role to minimize conflict between personnel where I can. If it makes you feel better, I'll go to him and say something like 'Ritter, old buddy, Djen's been reporting that you're a deadbeat, an asshole and probably more or less mentally deranged. What do you think I should do with her?'"

"Ritter obviously isn't the only asshole on this station."

"Ouch. That hurts my feelings."

She grinned wickedly. "I didn't specify that the asshole was you, Commander, but I find your assumption telling."

"Ouch again. Let's get on with this before I have to consult Liston on his credentials as a proctologist. Tell me what you wouldn't tell me then."

"Some of the staff have been voicing their concerns to me about Ritter and his behavior over the last couple of weeks. They seem to believe that I'll pass this information on to you for action. They think I have your ear."

"You can have more than that if you want."

She brushed on, ignoring him. "Most of their opinions are vague. Nothing like today where we encountered questions about his methodology or the quality of his work, but more general feelings. They were initially amused by the postings of the game results every morning, but it's gone beyond that, Markus. At the end of the day he posts examples of the reading's veracity. People are starting to think he's spooky. And they're starting to think he's more than a little obsessed."

Brett shrugged. "It's not any worse than when he or Sievers or any of them were trumpeting their poker victories. It's just another card game, and the interest will pass as the game loses its luster of uniqueness. You said nearly the same thing yourself this morning."

"I've talked to more people since this morning. And you weren't so glib after what you concluded from playing last night."

He hesitated. "There is an intensity to their play that can be a little unnerving, but I wouldn't rank it as alarming. It isn't going to interfere with our mission critical functions."

"If the others start ostracizing him, or him and those he plays with, it could interfere. We're not a large enough community for anything but complete cooperation."

It was a valid point, and Brett chewed the inside of his lip as he considered it. In the isolated Persia microcosm, even the most minor incidents between personnel had a tendency to swell until they engulfed anyone who cared to pay attention. This wasn't backyard Indiana where idle gossip and unsubstantiated opinions floated away on idle breezes.

"You think I should criticize his work *and* his personality," he said. He laughed, but it sounded as uneasy as it felt. "That should be effective."

"That isn't all of it. Did you know he blew off his duty shift in the chem lab this morning? He didn't report a sick call and hasn't answered his messages. He just didn't show up. Someone went to bang on his door about ten this morning, but he's not answering and the door's locked."

"He was probably just up too late playing cards, but I'll talk to him. Missing his shift will be a good enough excuse to sit him down."

"You don't think what Ilam let slip this morning is enough to sit him down?" She shot a glance at him which suggested he was being intentionally difficult.

"Sure it's enough, if it could be substantiated. It can't be, and it could be argued that Ilam has cards on the brain just as much as Ritter. He could have misinterpreted Ritter's actions. He could have misjudged the severity of the damage to Ritter's suit."

Djen raised her finger. "And he was also the most vocal defender of Ritter's actions, regardless of the fact that Ritter obviously just pissed that mission away. You can't tell me you believe he did anything else."

Brett sighed and threw up his hands in surrender. "I'm tired of talking about Ritter's shortcomings. I'll speak to him as soon as I get a chance. What other news have you got for me?"

"No major issues. Nathan and Stivetts piped a remote fix for the nitrogen levels to engines Two and Four. That was done by lunchtime. The issues with Three have been put off until tomorrow because of the weather. Doctor Liston is diverting non-emergency medical to the second sublevel dispensary to keep Tappen under wraps."

"What's the news on the screens from Nine?"

"I dropped them off at the lab. Ilam's going to help me with the diagnostics first thing in the morning. They aren't his area of specialty, but he was on site and knows the general situation. I'll probably draft Jaekel for theory and programming experience. We should have something substantial by day after tomorrow. Maybe tomorrow evening if I crack the whip at them. Ilam asked if we should plan to replace the screens in the next day or two."

"Not until we find out what happened to these. We don't have the resources to

sacrifice eighty screens at a time for experimental purposes."

She nodded. "That's what I told him. He seemed relieved."

"I don't blame him."

"We also need to talk about Cassandra," she said. "What's the matter with her?"

A cool ball of discomfort settled in Brett's stomach. The transition caught him unprepared, and he wasn't able to mask his shock. "What makes you think there's anything the matter?"

Djen raised an eyebrow. "Let's see. You mentioned this morning after you were late that you'd had to interact with the primary interface. That's always important. On top of that, I've got a stack of preliminary daily reports on my desk and I happen to be quick enough to recognize a full system diagnostic done under your user credentials when you obviously weren't in the building. That means it was Ashburn, which means it was serious. My question is, how serious?"

"I don't know at this point," he admitted. She knew as much as he did, it appeared. Brett found that this pleased him. It meant he wouldn't have to lie. "Ashburn is getting aberrant security notifications which he can't seem to verify. Cassandra seems convinced she's correct, but obviously isn't. Ashburn wants to make sure it's a bad code and not a system tic that could spread to more sensitive areas."

Djen winked at him. "Which also explains the stationwide atmospheric analysis every twelve minutes. I'm going to have a big stack of paper to add to your files, you do realize?"

"Do you have any particular concerns about Cassandra?"

"I didn't until this afternoon, until I saw Ashburn's reports. Now I've got to worry that she's stumbling over complex functions. If I'm going to analyze several billion nanomech units, I'd like to think I can depend on Cassandra to get the numbers right. I have to believe that, in fact, or this investigation may take decades."

"You can trust her. Ashburn jumped her through the hoops and she came out

aces. At this point, it seems like an isolated error, but I'm not taking any unnecessary risks." He glanced at her sidelong. "And I want this to stay quiet, Djen. If people are having problems with Cassandra, I want them reporting it independently. We don't want to plant the information in their heads that she may be faulty."

"I understand. Are you going to talk to her again? I mean, by the primary interface?"

Brett furrowed his brow. "Why would you ask me that?"

"Curiosity. I've never been down there."

"I think that's probably for the best," he said.

"You don't seem to mind."

"I don't really have a choice. Ashburn doesn't go down there. Ritter doesn't. In fact, no one that I know of. Because it isn't healthy, I've heard people say. When people interact with her through voice recog or keypads, she's a machine. She's reliable. There's something fundamental that changes when you use the other, the primary interface. She seems more. . .fallible. Vulnerable."

"Human?"

He shook his head. "Tragic. She becomes an object of pity. The primary interface is a powerful tool, Djen, but all of the documentation generated for the Cassandra system more or less says flat out that human contact should be limited. Not because of what it does to the machine, but because of what the machine does to the user. The psychology can be hazardous. That's why they use Cassandras only for deep space missions with trained personnel. You can imagine the outcry if they were lodged in any and every corporate office in North America."

Djen seemed willing to accept his answer, and he was glad. It was like defending the actions of an old girlfriend to your wife. Not a place he wanted to be. They sat together for a time in silence drinking their coffee.

"Any other business that requires my attention?" he asked finally.

"I'll have tomorrow's duty rosters on your desk after dinner. Or I could hand them to you during dinner if you'd like to join me."

Brett froze for an instant, certain he'd misunderstood.

"Are you asking me out?"

She smiled, and the lights caught her eyes, lending them a glimmer. "Assuming you say 'yes'. If you say anything else, I'm pretty sure you didn't hear me correctly."

Brett started to answer, but his attention was drawn away by movement on the path in front of them, back toward the entry doors. A moment later Ritter came around the wide bend. His eyes scanned back and forth among the pallets of plants and several of the taller groves of deeply rooted saplings.

"There's Ritter," Djen said, still grinning. "I guess you can talk to him now. Or you can answer me, mister."

At the sound of her voice, Ritter stopped and raised his hand. Brett rose, lifting his own hand to return the greeting.

He didn't realize Ritter wasn't just waving at him, that he held a gun in his hand, until after he'd been shot.

He landed on his side with a stitch of fire up and down his shoulder and an icy numbness in his arm. He may have cried out, but he couldn't tell. It had happened too suddenly. Activity seemed to burst around him, but he made little sense of it because it came with no sound: Ritter lifting his head sharply as if he'd been startled; the snout-nosed pistol falling from his hand, bouncing on the path; Djen covering him with her body, her mouth wide in a shout or a scream. Slow moments later the technicians appeared, slicing through the greenery from their monitoring station. Someone made a diving tackle that caught Ritter from behind, bowed him forward enough to crack his spine, then drove him to the ground. Running footsteps rebounded up and down the webbed pathways. Brett could feel each one against his cheek.

And finally pain, poignant and bitter, stabbed up into his neck and down to his groin. At eighteen, Brett had been in his first auto accident. He'd pulled out into an intersection and been t-boned by an old couple's late model Cadillac. The

weightless, time-lost and sickening thud of impact had filled his nightmares for a week, though no one had been harmed. His entire body felt like that sound now.

Then he breathed, and the pain subsided a bit. Noises rushed at him from all sides. Angry shouts, the buzz of a general station alarm. Djen was calling to him. Shaking him, actually, and it aggravated his shoulder more than a little.

Brett sat up. A smear of ugly crimson stained the sleeve of his suit midway between elbow and shoulder. In the middle was a furrow where there had once been a firm, round muscle. Had he surveyed someone else's arm, he would have pronounced it a *shallow* wound, but those weren't the words that came to him now.

"What a lousy, fucking shot," he observed.

"Markus?"

He looked away from the wound, smiled weakly up at Djen. She had her arms around his waist, holding him steady. He thought there might be a glistening of tears in her eyes.

"I'm fine. The bastard mostly missed."

"You're very pale. Lie down again. Doc Liston is on his way."

"I'm fine," he repeated, and promptly fainted.

9.

He seemed to rise up from a long distance, soaring skyward at enormous speed. Brett emerged from a veil of white cotton strangulation into darkness. Someone was humming as he floated nearer to consciousness, but it wasn't a tune he could place. The sound of it was tinny and resonant. Too much volume pushed through busted speakers.

He opened his eyes and saw only the gray, featureless steel plates of the ceiling. He blinked, heard himself groan very distantly. A form bent over him.

The man was trim, but round, almost portly. His head was a perfect circle flushed the red of a light sunburn. His small eyes were pale and bright like wet

stones, and he wore a white goatee that seemed to exist for the sole intention of mitigating his circularity of feature. It didn't work. Doctor Brent Liston bore a remarkable resemblance to the actor who had played Dr. Fizing on the mid-forties space drama *To the Stars!*. Brett could never remember the actor's name, though he had enjoyed the show immensely as a child. Fizing had always been running here and there about the interstellar exploration vessel announcing: *We'll not let it stop us, Captain! If I have to resurrect every jack man among us, we'll prevail!* That or some similar variation of it.

Brett had worked with Liston for five years now, and he anticipated the day when Liston said something even vaguely along those lines. He suspected the good doctor would sound as much like Fizing as he looked. Once, two or three years ago, when he'd had too much vodka at a station-holiday mixer, Brett had almost asked him to say the words. Just to see, just to let his curiosity get the best of him for once in a situation for which his impertinence might be forgiven, but at the last minute, his courage had failed him. It was probably for the best.

Liston squinted down at him, pleasant and thoughtful. "Welcome back, Commander."

Brett said something in return that sounded like *Ugh*. This was waking up, then. He didn't like it. Not at all.

◆How are you?◆

◆Awful. My head hurts.◆

◆Disorientation. Dizziness. You took a bit of a fall, knocked your head.◆

Brett began to remember. *The bastard shot me!* He clamped down on the thrill of hysteria that tried to uncoil in his stomach, made himself calm. A stone. ◆Ritter shot me.◆

Liston rolled his shoulders like a shrug. Neither here nor there, it seemed to say. You want a criminal investigation, talk to Ashburn. I'm just the med specialist.

"How does the arm feel?"

He raised his arm, tenderly at first, prepared for a stab of pain. He lifted it all the way over his head and then lowered it again. Rotated the whole damned limb on

its axis. "I don't feel anything."

Liston nodded, smiling. "That's good! It means the medication is working. Just a topical anesthetic, Commander, it shouldn't bother you much. If you experience anything like nausea, stomach irritation, bowel irregularity, you should let me know, of course, but I imagine you'll be just fine. ❖"

"Can I sit up?"

❖ Yes, yes. Certainly. ❖

Liston moved in to help him, but Brett waved him off. There really wasn't any pain.

"I think I fainted," he said.

"Shock. Pain. Adrenaline. It's not particularly surprising. ❖"

❖ It's also not the sort of reaction to tense situations a station commander wants to be broadcasting to folks who depend on his level headedness for their survival. ❖

The doctor waved dismissively. ❖ There's nothing to be ashamed of. Vaso-vagal syncope is a common reaction to uncommon events. It happens to the best of us. ❖

❖ Really? ❖

❖ Of course. ❖

❖ Like who? ❖

❖ Doctor-patient confidentiality and everything I was ever taught about medical ethics prohibit me from answering that question. But I can tell you that there are individuals on this station who display quite a bit more than the typical adverse reaction to the sight of human blood. ❖

❖ You're just trying to make me feel better. ❖

❖ And you're allowing your misplaced Western machismo to inordinately cloud

your judgment. More severe vaso-vagal reactions are accompanied with bladder evacuation. You should consider yourself fortunate. ❖

❖ Thanks for your vote of confidence. ❖

❖ I'm just telling you that it could have been worse. You were shot. I don't want to minimize the seriousness of that fact, but it wasn't serious, thank God. A roll of gauze, a bit of tape and a couple weeks of careful treatment will fix you up. You were *very* lucky. ❖

Brett lowered his eyes. It was just censure. ❖ You're right. Thank you. ❖

He ran his eyes around the medical bay. He sat on a padded slab of plastic mounted at the headboard by a series of terminals and data displays. The power indicators were all amber indicating sleep mode and the screens were dark. The hooks which would have held IV fluids were empty. The sensor cuffs and wraps and tentacled arrays were neatly piled on a table, their cords disappearing into the backs of the various monitoring machines. There wasn't even a metal tray of medical apparatus sitting by the bed. Brett felt his face begin to flush.

It could have been worse. Another way of saying, it wasn't actually so bad at all. A flesh wound.

Christ. He would never live this down.

He studied the drawn curtain between his bed and the other eight that constituted the medical bay. Something clicked, his head starting to work again.

"I heard you had diverted all medical traffic to the dispensary."

"Because of Tappen, yes," Liston answered.

"On the other hand, it isn't every day that the station commander takes a bullet, ❖ Brett said slowly.

❖ I wanted the full range of equipment at my disposal."

❖ Just in case? ❖

Liston grinned, winked. ❖ As a precaution. ❖

"Can I have my shirt back?"

"The one you came in with is on its way to the laundry, but Miss Riley said she would bring you a new one when she returns."

"How long have I been out?"

"A few minutes. Not long."

◆Of course not.◆

◆There was a good deal of blood on your shirt. It's probably ruined. Quite the gory sight to the untrained eye.◆

Brett sighed in disgust. "Anyone ever told you that you have a rotten bedside manner, Doctor?"

Liston suppressed another smile. "I wasn't hired for my personal skills. Besides, you don't hear Mr. Tappen complaining. Granted, he's comatose.◆

◆But if anybody asks...◆

◆I'll tell them that it was only my swift action and skilled surgical expertise that saved your range of movement from permanent damage, if not your life itself.◆

Finally, Brett studied the bandage on his arm. It was cleanly wrapped in white gauze with a piece of surgical tape stuck on the outside of his arm. A small but ugly streak of crimson stained the middle.

"That's it, then?"

"It was a small enough wound."

"You could have lied to me, doc, just for tonight."

◆Medical ethics prohibit me from lying to patients, even for their own good.◆

It was enough. If he had to take any more of Liston's good humored mockery, he might just forget his own professional ethics long enough to slap him. Gingerly, Brett levered himself down from the bed. He tested his balance before releasing his grip on the rail. There seemed to be nothing awry. Nothing at all.

◆If you're done, I've got to go talk to Ashburn.◆

Liston placed a restraining hand on Brett's arm. ◆Actually, we're not done.◆

◆No?◆

◆How far away was Ritter when he shot at you? Do you remember?◆

◆I don't know. Five or ten meters. Too close for my comfort, thanks.◆

◆Not much a marksman is he? Five meters. You must have loomed as large as a barn door at that range. Just sitting there, as Djen said when they carried you in. No sudden moves. No particular attempts to evade.◆

Brett could hear the thoughtfulness in Liston's voice. Evidence. ◆Go on.◆

◆It's just funny, don't you think? I mean, during our pre-mission training, I remember the weapons instruction module clearly. I had some reservations about it, as you might imagine. I almost dropped out of the program, you remember? As a physician, I didn't even have to bear arms when I was in the army.◆

◆I remember.◆

◆So they paired me with Ritter, because he had been something of a sportsman in his youth. Game hunting. Deer, squirrels, grouse. Have you ever tried to shoot a squirrel, Commander? Even at ten meters, a squirrel is small. The size of a playing card, and quick.◆

Brett rubbed his chin. He'd forgotten about this, left the details of his crew's personal lives scattered around the floor of his office with all the lab reports.

◆You don't think he was trying to kill me?◆

◆I don't know what he was thinking. Frankly, I don't think Ritter knew what he was thinking.◆

◆Any time you want to clarify your point would be fine with me, doctor. I'm listening.◆

Liston released his arm, satisfied that he had gained Brett's full attention. ◆You were going to find Ashburn, I assume, to see what he's done with Ritter. To ask

him yourself exactly what he was trying to do. ❖

❖ Something like that. ❖ It wasn't a responsibility he was looking forward to. What would he do if Ritter *had* been trying to kill him? Lock him in the brig? Persia Station didn't have a brig, and even if it did, would Brett really want to keep him there for five years? Could he expect Ashburn to hold him for that long? A man they'd all worked with every day for the last five years? It was the sort of disaster that could destroy the functional efficiency of a deep space outpost. If there were protocols for dealing with attempted murder, Brett was unaware of them.

Probably the best he could hope for was short term incarceration until the next supply ship arrived, then Brett could happily ship him homeward. Let the slow wheels of Justice grind a bit more slowly than usual, as long as they did their job.

❖ It's not something I relish, ❖ he said, defensive. ❖ I don't have any interest in revenge. ❖

❖ Ritter is here. On the other side of the curtain, Commander. ❖

In spite of himself, Brett winced. A stab of pain deep in his belly, something primal. Something predatory and vicious. Ritter had tried to kill him, and he was *here*.

❖ Why? ❖

More cogently, where the fuck was Ashburn?

❖ Don't worry. I took the precaution of restraining him prior to tending to your wound. You're in no danger. ❖

Brett took a deep breath, cleared his head. He spat his words like slivers of glass.

❖ Why was he brought here instead of immediately being taken into custody? ❖

❖ After he shot you, Ritter collapsed. And despite what your security officer may have to say about it, it was not as a result of Mr. Valent's more aggressive that was strictly warranted takedown maneuver. ❖

❖ Maybe it was vaso-vagal syncope, ❖ Brett growled, ❖ from the shock of

realizing he had just tossed his fucking life in the toilet.❖

Maybe Ritter pissed his pants. Maybe cosmic Justice moved with a bit more alacrity than secular justice.

Liston pursed his lips. Unhappiness folded the old frown lines that streaked his jowls into canyons. He looked like a man on the precipice of grief.

Brett felt himself shamed again. Just do your job, he thought. Be disciplined, like you would if he had shot Ilam or Jervis.

Grudgingly, he asked ❖How is he?❖

❖Sick. More than I care to think about, honestly.❖

Brett frowned. ❖Sick like Tappen, you mean. Meningitis.❖

❖It's a preliminary diagnosis. I've hardly had time to examine him. I didn't want to say anything until I've performed the necessary labs, but you didn't do me the courtesy of remaining unconscious for another couple of hours.❖

Brett shook his head. ❖Damn it.❖

❖Damn it, indeed. Do you know how rare a bona fide case of spinal meningitis is, Markus? Six thousand cases a year in North America. North America, I tell you, where every day we have farmers poking their hands into animal rectums, drug users sharing needles infected with God only knows what disease of the week, Chicagoans breathing whatever shit and toxins happens to be roiling about in the atmosphere from the nearest set of smokestacks. Six thousand cases in a world filthy with potential biological and bacteriological pathogens.❖

Liston drew a breath, taking advantage of the pause to weigh his words. ❖And in Persia Station where even the air we breathe is assembled on the nano-scale and redundantly scrubbed for infectious organisms, we have two. Not a promising ratio given the broader context.❖

Contagion. Just the speculation could spark a wildfire of panic. The breath in his lungs suddenly felt gritty, dirty, suspect.

❖You should have said something to me earlier, doctor. You should have told

me about the danger as soon as you knew.❖

Liston snorted. ❖What would I have said? That Mr. Tappen appears to have developed a serious case of spinal meningitis? That in most cases of meningitis with a bacteriological epidemiology, the patient has carried the organism inside themselves for months, if not years, before it crossed from whatever haven it had carved for itself into the spinal fluid? Or perhaps that our station atmospheric scrubbers have been calibrated to filter out all known harmful bacteria, so the theoretical risk of infection to other crewmen was so minimal as to be statistically absent? And that's even before the bacterial agent had to deal with the body's own defenses! Would you have listened to me then? And if you did, what sort of special precautions would you have instituted above and beyond the standard protocols we already observe?❖

Brett settled him with a calming gesture. ❖All right. It wasn't fair of me to start pointing fingers.❖

Liston seemed less offended than just weary, however. Already tired of thinking about the future. He had probably anticipated Brett's reaction from the moment Ritter had been brought into the medical bay. ❖You were frightened. I understand. That's why I'm speaking to you now. Believe me, from my perspective, this is very early in the diagnostic process to be making such dire predictions. But my own confidence, or lack thereof, in my preliminary diagnosis isn't going to matter to the folks outside this room. They're not fools, and they're not isolated by their own busy lives and personal trajectories like they would be Earthside. They gossip. What else are they going to do? Persia Station is a sealed biosphere. We all share the same space; we breathe the same air; we eat the same food. Worst of all, we can't escape any of those things. By now, I'm certain that everyone on station already knows what happened to you. Everyone knows that Ritter collapsed. Before long, they're going to start comparing Tappen's fainting episode with that of our esteemed xenohydrologist, and they're going to reach their own conclusions. You're the one who's going to have to keep them from experiencing that same surge of panic you just felt.❖

Liston was right, and for an acid instant, Brett hated him for it. He sagged back onto the bed. He wanted to scrub at his eyes with his fists as though it could make him see more clearly what he needed to do. "Start from the beginning. Tell me what I need to know."

Liston lowered himself into a chair he pulled up beside the bed. "I know you don't feel up to this now. ❖"

❖ "Don't worry about me. Tell me what we can do. ❖"

❖ "I can give you a list to post, Markus, but Jesus, the symptoms of early onset meningitis are just vague and ubiquitous enough that anyone harboring even a case of the sniffles is going to shit themselves. I'm talking about things like headache, stiff neck, sensitivity to light. The sorts of things you'd associate with the common flu. ❖"

❖ "Better to be proactive, doctor. ❖"

❖ "Agreed. Just as long as you're prepared for the headaches. Not literally, of course. Professionally. ❖" Liston ran his hand over his skull, thinking out loud.

❖ "Maybe a general educational effort after that. Alert the crew that those who might have had more than casual contact are at greater risk. Those infernal card players, for instance. Shift partners over the last month or so, after the etiological agent ceased to be dormant. ❖"

Liston was leaping ahead of the game, churning through medical protocols and disease containment procedures drilled into him by years of practice. Brett pulled him up short with a wave of his hand.

❖ "I have no intention of casting doubt on your expertise here, Brent. I want you to understand that. As far as I'm concerned, the health of the people manning this station falls completely within your purview. But I'm the one who writes the checks that the administration is going to cash. Ultimately, this is my responsibility. I need to know that you're confident in this diagnosis. I need to know that this illness is what you say it is. ❖"

Liston blinked at him for a moment, at the sudden shift in thinking. ❖ "Of course. Yes. ❖"

❖ "Ashburn told me that you've had him scanning the environment for pathogens. He said that the results were coming back negative. ❖"

❖ "Yes. I haven't been able to identify the precise etiological agent, certainly. Ashburn's contribution was a sort of scatter plot, to see if Cassandra could identify the source of the infection more rapidly than traditional lab techniques. ❖"

Before tonight, I thought I had time, a few more days.❖

Brett couldn't fault him. Wouldn't fault him. Liston had never shown himself to be anything but competent in his work.

❖That's okay. I want to know what you've got right now.❖

❖Without examining Ritter?❖

❖Yes.❖

❖Tappen presented two days ago with no recent history of complaints. He came looking for acetaminophen, complained of headache, photophobia, muscle aches and malaise. His assumption was that he'd stayed up too late, been working too hard, drinking too much. I saw no reason to disagree with him.❖ Liston smiled grimly. ❖I questioned him generally, and he admitted to some back pain over the last few days, elevated levels of fatigue, some diaphoresis. I thought he might be coming down with the flu, but didn't give him much attention. I gave him some pills and sent him on his way. He passed out while on duty some two hours later and was brought back to me unconscious. That was really my first indication that this might be something more troublesome.❖

❖But not meningitis. Not yet.❖

❖It crossed my mind. Any first year resident carries around a mental list of potential diagnostic matches for a set of general symptoms like that. Meningitis is on the list, but relatively far down. Despite laymen's perceptions, as a profession, we don't automatically choose to assume the worst, even in medical emergencies. Nevertheless, I took the standard samples, performed the requisite tests. What came back was textbook evidence of infection. Elevated white blood count, increased fever, decreased glucose. I still wasn't thinking actively about meningitis until the first episode of seizure. It was mild, thank God, and I'd taken the precaution of restraining him beforehand. I proceeded to administer a lumbar puncture to obtain cerebro-spinal fluid for additional tests. I looked for *Streptococcus pneumoniae*, *Neisseria meningitides*, *Listeria monocytogenes*, all the usual suspects. There was nothing. I advanced to CSF-serum glucose ratio tests, Gram stains, protein levels. Nothing!

❖And yet I'm certain, still, of this diagnosis. The etiology eludes me, yes, but there are so many of the standard signposts. His CAT scan indicates a dangerous

level of meningeal swelling and intracranial pressure. He has a rash indicative of septicemia which only accompanies bacteriological meningitis. I've given him intravenous cefotaxime, vancocycin, ampicillin—the entire arsenal in other words, Commander.

And?

Liston dropped his head, exhausted, defeated. He is not responding. Not to any of the accepted treatments. And that means he's going to die. Unless I can identify the antigen and find a way to combat it, Mr. Tappen will not last the week. I have never encountered an infectious agent so well hidden, so *determined* to resist detection.

Is it an issue of resources? What can I do for you? Brett understood instinctively the bitter tenacity with which Liston approached this problem. Tappen was one of them, an integral part of their community. His death would be deeply felt, devastating, made all that much worse by the amorphous nature of a shadow infection that refused classification. It was a loss they couldn't afford.

"Micah down in bio has been lending support where he can, going over some of my results, duplicating my lab work. It isn't a matter of manpower, just a matter of time. The tests take time, analysis of the results takes time and understanding which tests need to be done next takes time. After the standard causals are exhausted, it becomes a process of exploration."

All right, then. I'll stipulate for the record that this is bacterial meningitis, as you say.

Bacterial meningitis of unknown etiology, Liston corrected him. I believe Ritter is all the confirmation I need for that particular conjecture.

It also confirms that the rest of the station is at risk. What do we do next?

"Instruct all staff to report directly and immediately to medical if they experience anything on the list of probable symptoms. Tell them that an early diagnosis increases their chances of avoiding the worst. It may or may not be true, but it will make them feel better." Liston paused, chewed his lip. Anyone who has been in close contact, shared utensils or hygiene products. Anyone who has had sexual relations with him in the last month. I need to see all of them. Sievers, Jervis and Ilam should report at once for a battery of intensive antibiotic

treatments. The rest of the station should undergo a lighter regimen just to be safe. That should put everyone at ease as well as circumventing any additional cases."

◆ Except the antibiotics didn't work for Tappen, ◆ Brett reminded him.

◆ But in all likelihood, they will work on less advanced cases. ◆ Liston sounded more hopeful than certain.

◆ You're not sick, and you've been with Tappen since he became ill."

But Liston shook his head. "I take precautions. I work in a sanitized environment. I never touch him flesh to flesh. And he's only been here about three days. He may have been actively infectious for two or three weeks. But remember, he may have carried the bacteria in his system a long time before it passed into the spinal fluid."

◆ And what about the rest of us? What's the probability that we're already infected? ◆

Liston only frowned. ◆ Until I can identify the antigen, I can't answer that question. We should assume the worst. ◆

Brett allowed the words to linger in the air, feeling their weight, their gravity. The horror of possibility tugged at him like a singularity, beckoning him to panic, but he resisted.

◆ What about Ritter? ◆

◆ What about him? ◆

◆ Does this explain his actions tonight? ◆

◆ It could. I've read reports of untreated meningitis advancing into encephalitis. The difference being that meningitis attacks the covering of the brain, whereas encephalitis attacks the brain itself. With enough damage, enough disconnection from consciousness, anything is within the realm of reason. ◆ Liston looked up, his expression sheepish. ◆ Not that I'm trying to alarm you, Markus. I don't want you to assume that you're going to have a station full of homicidal lunatics on your hands. Ritter's manifestation is a highly irregular occurrence, a perilously

advanced case. Most of our potential victims will go like Tappen. Today they're feeling unwell; tomorrow they're here, comatose, docile as lambs. In some ways, the typical course is almost more terrifying than the alternative.◆

◆Jesus Christ.◆

Liston crossed his arms over his chest and grinned bleakly at Brett. "It's a good thing you had already put away thoughts of vengeance, eh? Have you thought about how you'll handle the disciplinary aspect? You can't really punish him for medically induced hallucinations."

◆No.◆ Damn it.◆ But that doesn't mean he's completely off the hook yet. At the very least, it makes me suspect that he doesn't like me very much. I should probably do something about that.◆

◆Beware the disgruntled xenohydrologists.◆

◆Exactly. It wouldn't be the worst idea to take advantage of his condition to look through his personal effects. See what made him pick me out as a target."

◆The problem with administrators is that most of them can't stand the thought of being disliked.◆

Brett didn't rise to the doctor's taunt.◆ It's a long haul. Private issues have a way of festering if left in the dark for too long, and I don't mean just in terms of pitched gun battles in the arboretum.◆

Liston might have said more, but the automatic door hummed open behind them and Djen entered carrying one of Brett's t-shirts. She tossed it at him and frowned.

"I've had worse rejections to dinner offers," she said.

Brett arched an eyebrow. "I find that hard to believe."

"What a delightfully interesting dating life you must have had, Miss Riley," Liston added, laughing. "Tell us more."

"Play nice, Doctor, and someday I might, just to see your toes curl. How's Ritter?"

Brett pulled on his shirt. "Hey, I'm fine, by the way. Just a flesh wound. Nothing to worry about."

Djen rolled her eyes. "Don't get blood on that shirt. You've ruined enough for one day."

"I have him in a biocontainment tent," Liston answered. "It appears he's contracted a less developed case of Tappen's meningitis. I gave him a significant dosage of Phelactix and started an IV. He's still unconscious, but that isn't necessarily bad. It will allow him to conserve energy while we fight the infection for him. I'll keep the both of you apprised as the situation changes."

"Let me know if he wakes up," Brett said. "And Ashburn as well. He'd never forgive me if I bypassed him on a legitimate security incident."

Djen took hold of his arm below the elbow to avoid the wound. "Come on, Commander. You've had enough excitement for one day. Let's get you into bed."

"That," he said, "is the best offer I've had all day."

10.

Brett stopped at the door to his room. Djen had given up the nursemaid role the first time he had descended a ladder without her assistance and without much of a grimace, but she walked beside him nonetheless. Probably to make sure he made it here, he suspected. Not an if-he-collapses sort of concern, but of the or-he'll-get-sidetracked variety.

"What's the situation with the rest of the station?" he asked.

"Open the door, Markus."

He did as he was told, pushing down the handle and swinging the door open. Djen pushed him gently through and closed the door behind him. She put her shoulders against it and leaned back with her arms crossed.

Brett repeated his question.

"Valent is the most upset," she answered. "The errant projectile lodged in the trunk of one of his saplings. Damn near cut the poor thing in half. He doesn't

know if he'll be able to save it."

"At least it didn't damage the biosphere."

She pointed a finger at him. "At least it didn't damage you. It could have been worse."

"That's what Liston said. Then again, I've seen Ritter's glasses." Brett grinned at her. "He was probably lucky he hit me at all, even from that distance."

"It isn't funny," Djen snapped. She bounced forward and planted her hands on her hips. "The crew is shaken, Markus. We've worked together for five years, all of us, and that includes Ritter. It looks like he just snapped, just out of nowhere, snapped and decided to kill someone. People are wondering--if it can happen to him, it can happen to you or me."

Brett rolled his eyes. "Ritter is sick. You heard that yourself."

"No one else has heard it, and you know as well as I do that it isn't going to calm them down. If they're just worried about a little cabin fever, they'll panic over a contagion."

"Then I should get out there. I'll show them I'm okay and pass the news about Ritter."

"You're going to bed right now. Showing off your ouchy can wait until morning, and I'll pass the word about Ritter. It won't help, though."

"Liston said it's only minimally contagious, with the exception of the card groupies. We'll be fine, all of us."

Djen's lips began to tremble. "Until someone else gets sick, goes a little crazy and grabs a gun. Where did he get a gun in the first place, Markus?"

"That'll be one of my questions for Ashburn." He scowled in her direction. "I've also got to search Ritter's room. I've got to post Liston's warning. I've got to track down Sievers and Ilam and Jervis and get them to the med bay as soon as possible. I really don't have time to go to bed right now, Djen."

She turned from him and began folding down his blankets. Over her shoulder,

she said, "I'll make the med contact. I'll spread some calming rumors. Ashburn and Ritter's room will wait until tomorrow, but I'll warn Ashburn that you want to talk to him first thing, so he can get his story together. He's probably trying to answer the gun question himself right now."

"Those things are my job."

"Your job is to get into bed."

Brett shook his head. "I'm not in the mood to argue with you. I got shot this evening."

"Precisely my point, Commander. Get into bed. That's an order."

He started to protest, but saw that it was pointless to do so. Instead, he said, "I want you working on those screens first thing in the morning. Figuring out what happened to Nine and making certain it won't happen to the other engines is our top priority as a station. I want that clear among the scientific personnel. Ritter's snap is a minor incident. Is that understood?"

"It's clear. Get your boots off."

"Christ!"

"Get your boots off before I have to knock you down and take them off."

Brett did as he was told. He dropped onto the bed and began to wrestle with the laces. His hands were shaking, which surprised him, and he settled for putting toe against heel and kicking his boots off one at a time. He stretched out on top of the blankets and stared at the ceiling.

Djen was silent for a time, then quietly she said, "You scared the hell out of me tonight."

"We must both be born again believers, because there isn't much hell left in me, either."

She laughed, and he started to laugh as well, but then she was crying with her hands curled into fists and balled against her eyes. The sobs came hard from deep in her chest. Brett sat up, and climbed to his feet. He went to her and

wrapped his arms around her shoulders and hushed her as he would a child who had skinned her knee. After a time, the tears stopped, but he continued to hold her. Her face against his chest and her warm breath through his shirt felt too comfortable to release.

Djen pushed away from him first. She swiped at her damp cheeks with her fingers. "For five years I've been trying to get you to do that, to notice me as something other than an employee, to hold me like you meant it. If I'd have known getting you shot was all it took, I'd have done it myself." She seemed to think about that for a moment. "Or maybe it was the crying. I should expect as much from a proven male chauvinist."

"Djen?"

She held up a hand to stop him. "Shut up, Markus. I'm the one who's been waiting all this time. And I'm tired of waiting. I'm tired of crying my tears where you didn't see them and feeling lonely and goddamned *pinning* like some old west frontierswoman. I know you're hurting. I know you came here with some major blight on your soul that hasn't let you see much but pain and darkness since we got here. You haven't had a realistic relationship with another human being on this station since the day we left Earth, and no one but me has noticed. Well I've noticed, Commander, and I'm sick of it. I'm not going to let you push me away anymore. I don't care how much your heart hurts or your arm hurts or your freaking pancreas hurts, for that matter. You're going to notice me now, whether you want to or not."

With a deft and rapid series of zips and jerks, she shed her station suit. Brett had to put his knuckles against his chin just to be certain his jaw wasn't hanging.

Djen opened her arms wide. "Come and fraternize with the crew before I decide to kick your gimpy ass."

Brett did not go to her. He grabbed her, running his hands along the naked warmth of her back, down to her buttocks. Djen leaned into him, beginning to smile. Then he squeezed and with a jerk, lifted her off the ground and spun her onto the bed. His momentum carried him forward, and he landed on top of her. She giggled at his sudden fire, but he hardly heard her.

Brett lost himself in her presence, in the minute exploration of her body. He tasted her light and salty sweat. He ran his hands along the smooth, tan skin of

her arms, the corded musculature of her belly and her firm thighs. He buried his hands, then his face in the dark coiled and delicate curls of her hair. At some point which he could not properly remember, he stumbled out of his clothes and wrapped the entire length of his body around hers.

When he entered her, there was pressure. Inside him, there was a swelling in his skull and his chest and the tips of his fingers. He was a stoppered bellows squeezed by a mighty smith. He closed his eyes against the strain. And there was a violence in the effort, both in the withholding and the expression. The world throbbed with him, and his thrusts were savage. Djen moaned beneath him, a sound that was pure pleasure, and he lashed at her with his hips. He clutched her and smothered her against him and buried himself in the sweat streaked erotica of that secret hollow place between her neck and her shoulder.

And then he opened his eyes. In the space of a breath, it all changed.

Emily.

Her technicolor blue eyes shone up at him from her white and delicate face. Her small mouth spoke his name where Djen's full and inviting lips had been. Her trim and petite athleticism replaced Djen's voluptuous and muscular roundness. She was lithe and quick and fresh as a sylvan fairy. It was her voice, Emily's voice, that reached his ears.

He stared at her. He stared and stopped whatever thing it was that he had been doing the moment before.

"Em?"

"Markus?"

There was a hoarseness in his voice, but the passion had evaporated from him.
"Em?"

He straightened sharply, disentangled himself from too many limbs and too firm a grip on him. He felt a rake of fingernails along his back as he rose. He tried to gather his feet beneath him, tried to keep his eyes on her, on Emily, on impossibility, but the fact of its impossibility could only penetrate incoherently. Then he was caught in the sheets and still wheeling backward. He slipped off the high edge of the bed, fell for a breathless instant and landed with a loud smack

on the floor.

Darkness swam about him. His head filled with a detonation of argent flares. Brett blinked them away.

And when he opened his eyes again, Djen was there. She crouched at his side and peered down at him, her large brown eyes rimmed with concern, wariness.

"Markus?"

She spoke his name, just as she must have spoken it before, he knew. It hadn't been Emily. It had never been Emily. Just Djen and his blind and foolish confusion. Ritter wasn't the only one whose mind was slipping its gears.

"I'm sorry," he said.

Djen touched his face softly. "Do you want to tell me?"

"No."

Her eyes clouded for a moment, but then she blinked and they were clear again. "Did she hurt you so badly that five years isn't even enough?"

"I was the one."

She studied him in the yellow glow of the room lights. "I don't doubt that you were."

"I'm sorry," he said again.

Their eyes met and held. Finally, she bent over him and kissed his forehead. Then she rose and lifted herself back into the bed. With two quick flips, she straightened the blankets and sliced cleanly beneath them. She patted the space beside her.

"I make it a point, generally, not to let old girlfriends impinge on a relationship. Memories of them are like blisters. Get them out in the sun and dry them up, then everybody's happy. But this isn't a blister, is it? This one's more like a tumor, and if I could understand its metastasis, I'd understand everything about you, I think.

"You're not a complicated man. You're a good man and a solid man who spends too much time punishing himself for things beyond his control. You're a man who wasted too much effort trying to be decent in a hard and careless world. I've learned these things from watching you. You're sensitive, though you'd like to be made of stone.

"If I wanted to, I could make you unravel this secret. You'd tell me, because you're as lonely and confused as I am, Markus. But at the end of the story, it wouldn't mean anything to me but information. It would seem tragic, I'm sure, but tragic in a distant and non-touching way. You would look at it through my eyes and find something of pettiness in the explanation. I know this because I've done it a score of times with the ghosts of old gals who needed exorcising. But this is a special ghost. It's a beloved ghost that makes you what you are, and I can see that making her seem petty would be a crime.

"Come back to bed with me. We'll let this one ride. Tonight we'll be old lovers and you can hold me until morning."

Brett said nothing. He didn't deny what she said, because he couldn't. He had the sudden urge to tell her she was beautiful. That in this moment of silence and breath and understanding, she was stunning. But he didn't do that, either.

Brett rolled to his side, then up to his feet. He slipped beneath the blankets and took her in his arms. He held her throughout the night, awake long after her breathing had settled into a relaxed and constant rhythm. He cradled her with her face against his chest and his arm around her shoulders and their legs entwined.

But it was Emily that he saw in the shadows. It was Emily that danced in the dark, just out of the range of his vision once the lights were out.

It was very late before he slept.

11.

Brett met Ashburn outside the door to Ritter's room early the next morning. He had scheduled it this way, during the prime breakfast hours for the oncoming shift and the dinner hour for those who had worked through the night. The hall was empty except for the two of them and would likely remain so for the next half hour. Brett didn't want any more prying eyes about than absolutely necessary.

Ashburn flashed the Admin key card and swiped it past the sensor on the door panel. The bolt clicked open.

"How's the wing, boss?" he asked.

Brett lifted his arm to demonstrate. "A little painful this morning, but I'll live."

"You want to tell me why you needed me here for this little foray?"

"Two reasons. I want this done properly. It might look a little unseemly in a disciplinary hearing if the victim searched the perpetrator's room by himself. And I needed to talk to you, anyway. I need you to tell me where Ritter got his hands on that gun."

Ashburn shrugged. "Weapons' locker. In my office. I didn't notice until after the event because it isn't something I look at often. We don't have much of a use for firearms. Looks like he used a laser scalpel to fry the lock, which didn't leave much of a trace from the outside."

"And where were you while he was running around in your office?"

"I was there all evening, from the time I talked to you. It had to have been done earlier, probably when I was doing the diagnostics on Cassandra." Ashburn paused, considering the implications. "I guess that would mean the attack was premeditated. He'd have held that gun for more than a couple of hours before he went hunting with it."

Brett pushed the door open, and for several moments, they stood in the hallway looking inside. There wasn't much to see. The bunk was made, though the blankets had twists and depressions on the surface which suggested someone had tossed and turned atop them. The floor was bare and clean. The lights were on. The only article out of place was the bedside table. It had been scooted from its position against the wall to a place beside the bed.

Brett and Ashburn entered and shut the door behind them.

"Look at that," Ashburn said, pointing to the table.

There were cards laid out along the surface in a pattern Brett recognized. He muttered a curse under his breath.

"What do you make of it?" Ashburn said.

"He was playing that game."

Brett took a few steps forward and peered down at the reading Ritter had set out. His jaw tightened.

"What is it, Chili?"

Brett didn't answer. Beside the cards was a scrap of paper and he picked it out from beneath the right hand line of cards. The top two cards spilled off the edge of the table and fluttered to the ground. Brett glanced at the scrawl of writing then handed it to Ashburn.

"It's the name of all the station personnel," Ashburn said, then corrected himself. "Except for you. Interesting. What do the marks beside the names mean?"

But Brett was studying the cards. Four of Staves, Five of Cups, The Moon. The Tower card covered by a second one--Death. It was his reading, the one he had cast after winning the game. Ashburn hadn't reached the bottom of the list yet. He hadn't seen what Brett had seen, the list of crew names, each with a chit beside them as though they'd been ticked off one at a time, and at the edge of the page a number. 1.31×10^{547} . It was circled for emphasis, and Brett knew what it meant without stooping to do the math.

"What do you make of it?" Ashburn asked.

"Ritter was trying to change the future, only to find it immutable."

Ashburn frowned at him, obviously not understanding. Brett chewed his lips, reading the lay of the cards. Thirty-two times he would have dealt them. Thirty-two times he would have come up with the same reading. Even with a number as phenomenally large as his result, it didn't seem like enough. It should have never happened. Never. But Ritter was convinced that it had occurred, and had taken a different path to the resolution of the problem as he saw it. Brett was responsible for the future because of his reading.

But had he really done it? Had he really dealt those cards thirty-two successive times with the same results? Or in his confusion, had he just believed he had? How sick had Ritter been that night? Brett recalled him, flushed and angry and

intense, plainly disappointed with losing.

He may dare, should he choose, to make a world.

Ritter had gone fucking nuts. A whole can of fucking mixed nuts.

"We're done here," Brett said.

Ashburn gaped at him. "That's it? We haven't found anything but a game of porno solitaire from what I can see."

"I know what he did, why he did it and where he got the weapon. I can take it from here."

Ashburn dropped the paper and put his hand on Brett's arm. "You can take it where? What are you talking about?"

"I'm going to see Liston. Good job, Ashburn. You've done well."

Brett broke the grip and strode out the door. Behind him, Ashburn called out. "I didn't do anything, damn it! I'm the goddamned Security Officer!"

He had to wade through a steady stream of people to get to Liston in the second level dispensary. The doctor had set himself up in a tall rolling chair toward the back of the room. On a table beside him were a series of spent ampoules which rolled on their sides and occasionally spilled off the edge and broke on the tiled floor. Micah from the bio lab was beside him in an identical chair with another table and his own stockpile of ampoules. They each held an auto-injector gun and were working their way through the line giving shots of what Brett assumed to be antibiotics.

Micah waved happily at Brett. "I haven't given this many shots to human subjects since I was pre-med."

The pretty redhead from mech engineering flinched as he depressed the trigger. There was a puffing sound and Micah pulled back, grinning at her.

"All done, gorgeous. Here's a bandage and a symptoms sheet. If you have any problems, you know where my room is."

She rolled her eyes and walked away. Brett noted that she didn't refuse the symptoms sheet. He strode to Liston's side and leaned toward him.

"What about the others?"

Liston finished the inoculation he was giving, then waved the others in the line over toward Micah. He set his injector down on the table and pocketed both the half empty ampoule in the instrument's chamber and the remaining full ones clattering on the tabletop. Liston took Brett by the elbow and steered him into the small office off to their right. He closed the door behind them and pointed Brett toward the chairs on the near side of the desk. The doctor sat on the other side, dropping into the chair so that it groaned beneath him, and began to squeeze the flesh between his eyes as though his head ached.

"They began arriving at seven," Liston explained. "You posted the station message at what? Quarter 'til?"

"That's about right."

"Micah was the first one in, so I drafted him knowing his background. He's a rather abrasive young man, but he can do the job well enough. We've taken care

of most of the station. I'll have a list of lollygaggers for you this evening, should you care to encourage them."

Brett leaned forward and propped his elbows on his knees. "What's their mood?"

"Scared, but only a little. I didn't give them the credit they deserve last night. These aren't your normal civilians. They're space explorers. They're frontiersmen, and heartier than the norm, I think. The antibiotics will allay what fears remain for a time."

Liston fixed him with a steady and serious gaze.

"For a time?" Brett asked.

"I admitted Sievers and Jervis to medical this morning. They came as ordered. Aching joints, light sensitivity, low grade fevers. They're both infected."

Brett could only imagine how short a time it would be before that information escaped.

"Shit."

Liston leaned back and steepled his fingers below his chin. "Curiously, Ilam also reported, but he has no symptoms. I've quarantined him to his room for the time being. I saw no reason to further expose him to the sick, but I'm not going to let him perform a reprise of Typhoid Mary, either."

"What's next?"

"Next I'll take CSF samples from Ritter, Sievers and Jervis and probably spend the afternoon in analysis. I may puncture Ilam as well, just for comparison. I should have your causal agent identified before dinner. It won't do Tappen much good, I'm afraid. He'll be dead by morning or maybe tomorrow afternoon if he's tougher than he looks."

Part of Brett groaned. "And the others?"

"I suspect we'll salvage them. It seems early enough." Liston smiled weakly. "But don't quote me on that, Commander."

"I have another question," Brett said. "Ashburn told me that part of Cassandra's atmospheric protocol is a regular scan for known disease causing bacteria. Is that true?"

"Certainly. And he told you that the various bacteria known to cause meningitis are part of the identified set of biological agents. That's true as well."

Brett raised an eyebrow. "But you didn't receive a report."

"Nor would I expect one in most cases. Cassandra is a wonderful piece of hardware, but she only fulfills the guidelines given to her. You must realize that most of the common bacteria which become illness causing are present in the air and on surfaces and in many cases inside the human body on a regular basis. Our own natural defenses keep them at bay. It would have to be a significant level of bacteriological infestation for Cassandra to recognize it."

"But you still had Ashburn check."

"He was doing a diagnostic. It seemed a way to assist us both."

"Were you disappointed that he didn't come up with anything you expected?"

Liston eyed him uneasily. "I was. I told you that I performed the lumbar puncture on Tappen. I've had a sample of his spinal fluid for a couple of days now, but I can't detect any of the known causal agents in the fluid. It looks clear. I developed a culture and studied the results early this morning. There's nothing there that's been recognized as a causal factor in spinal meningitis. But the swelling in the meninges is unmistakable."

"Then it has to be some other cause."

"Some other bacteria that I haven't found yet. That's why the addition of the new patients could be beneficial in the long run."

Brett suddenly understood. "And that's why you're not so torn up about Tappen's condition."

Liston shrugged, but it seemed a pained gesture. "After he's dead, I'll have a more--ah--invasive opportunity to study the meninges. It won't do him much good, but it will likely benefit the others."

"Have Sievers or Jervis demonstrated any symptoms similar to Ritter's?"

"Do you mean, have they been violent?"

Brett nodded an affirmative.

"No. They've been in relatively high spirits due to strong faith in modern medicine, a sick call exemption for the near future. . .and the fact that I haven't allowed them to see Tappen at this point. Their most trying circumstance appears to be the fact that I don't have access to a deck of playing cards."

"I wouldn't find one for them either, if I were you."

Liston inclined his head curiously. "Something you learned from Ritter?"

"Ritter's attack seems to have been initiated by his obsession with the card game they play."

"You beat him and he didn't like it. You wouldn't be the first man against whom murder has been attempted over a soured card game."

Brett chuckled without humor. "On that note, doctor, I'll let you get back to your pig sticking. You'll notify me as soon as you get the results this evening, or sooner if you make other determinations. I'll most likely be in the engineering labs."

Brett rose from his chair and walked to the door. Liston remained seated, leaning back against the wall. It occurred to Brett that Liston wasn't telling him something. The doctor was keeping secrets for whatever reason, and those secrets troubled him. Perhaps they were only secrets of frustration and ignorance, which made them unwilling secrets. Secrets he did not fully know himself, and the lack of knowledge kept him both silent and alarmed.

If that was true, Brett was sure they would all share his fear soon enough.

12.

Brett entered the engineering labs through a pair of sliding plastisheen doors. The rush of negative air pressure buffeted him from behind and sent a tickle up his spine. He paused to survey the stainless steel counters, the scanning electron

scopes and unoccupied terminals. The morning was wearing on, and it occurred to him as he surveyed the empty spaces that he hadn't bothered to get breakfast for himself. He pressed on down the narrow corridor between digital analysis machines on roller wheels, scanning plates and row upon row of electrical grapple sensors. The lab was clean and white, the lighting harsh to the point of glaring. Everywhere about him was the hum of fan-cooled machinery.

Djen was in Nanomech Containment, a medium sized plastisheen cylinder in the center of the room. She wore a sealed orange e-suit and worked over a low stainless steel counter with its own assortment of diagnostic sensors, microscopes and display terminals. Brett strolled to the comm port by the door and toggled it on.

"Djen?"

She turned her head toward him, smiling through her faceplate. "I was going to page you. Next thing you know we'll be finishing one another's sentences. Isn't that cozy?"

"I'll suit up and join you," he said.

He found the spare suit in a closet and dressed while Djen cycled up the pressure barrier. Once inside, he saw that she had set three of the screens they'd brought back from Nine edge to edge along the countertop. The fourth screen had been carefully disassembled from its frame and the layers of micromesh peeled back. One sheet had been trimmed into long and thin rectangular strips with the tear in the middle. Djen had been studying it beneath a standard Hamer high magnification light scope. On the terminal to her left there was an image of a gray forest of spiked pillars. Brett thought of spear tips glinting in the light as he saw it, but realized quickly that it was an image of another segment of the screen taken by the scanning electron microscope housed beneath the counter.

Brett said, "So you've found something?"

"I would have found it earlier if you'd bothered to wake me when you left this morning."

The strange familiarity felt chafing to him, so he only shrugged. He bent down to the Hamer and strained at the eyepieces. "I don't see anything. Just shadows."

"It takes some practice to align your eyes through the faceplate."

"I won't bother, then." Brett pointed to the image on the terminal. "This is the screen from Nine?"

"Yes, under greater magnification. That image offers about forty micron resolution on one strand of silicon-fiber cable."

"And that means?"

"That means you're looking at the tear in the mesh really up close. The silicon fibers used in the mesh are about eighty microns in diameter, roughly the size of one of your hairs. The nanomech units are smaller." She pointed at the screen. "See this one here? He's hump-backed and spindle-legged, like a spider. This character runs about half a micron in length. A strapping young thing compared to some of the others."

The frozen view had caught the unit loping along a wide black plain riddled with puddles of darkness. The vast terrain narrowed farther along to a jagged crown of splinters displayed along the upper third of the image. It was the splinters that had initially struck Brett as spear heads.

"What's it doing?"

"Strolling about, most likely. The production programming was voided when the fiber snapped, so this guy's reverted to hardwired coding. He understands that his battery hasn't been recharged in quite a while, and finding a power source is his top priority. He probably has another twenty to thirty hours left in him, so he'll track up and down the strand searching for a shot of electricity through a working node. You have to feel a bit sorry for him. He's lost and doesn't know that he's doomed."

Brett studied the top of the fiber where it had torn. "That looks like a tensile strength failure by the sharpness of the break."

"Hold that thought."

Djen pulled a sliding drawer from beneath the counter and began to tap commands into the keypad that rested there. The image on the screen blurred, then snapped away and was replaced by another. This picture struck Brett as

something vaguely volcanic, the rippling and devoured basin of a recently dormant caldera. Tall slabs of darkness crowded along the far summit.

"This is the same strand, same magnification, only viewed from the reverse side," Djen said. "You see the difference in the contours?"

"The break isn't sharp."

"Precisely. From the other side, it looks as though the wire snapped. As though we could match it with the other end and find at a small enough magnification that the shards of silicon cabling would fit together like a puzzle. Here, it isn't the case. There's too much. . . roundness. Like the surface of the cable was scooped out."

"And the other side doesn't match that pattern?"

"No. In fact, there's a significant mass differential. There are pieces missing between the two ends."

Brett nodded. "Then you were right. The nanomech units chewed the line apart themselves. When the cable had reached some level of critical strain, it snapped."

Djen frowned and shook her head. "I haven't shown you the rest. My working hypothesis was only partially correct."

"Go on."

"It wasn't the resident nanomechs that broke the fibers."

She sounded certain, and unhappy about it. Brett didn't understand her reaction. "Then what was it?"

"Something larger. I don't know how large exactly, but I'd estimate probably on the order of one and a half to five microns in diameter."

"How do you know that?"

Djen glanced past him, unwilling to meet his eyes. "The bite marks are too large."

"Excuse me?"

"The surface of the damaged fibers have several distinct slices near the edges which appear narrow at the ends, wider in the middle, as if the material had been culled in several broad sweeps. The length and width of those swipes aren't consistent with the size of the tools available to our units, though I'm making my estimates of the size requisite for this kind of damage from our models. Depending upon function, our nanomechs range from a few hundred nanometers to maybe three quarters of a micron in size. The assembler units can produce mechs up to about two microns under emergency conditions, such as when the tensile strength of the mesh has been compromised, but the production logs don't indicate anything other than standard repair to existing units and no fabrication of new units in the last twelve days."

"So whatever it was that broke the screens came on suddenly. It wasn't a gradual weakening or the assemblers would have responded. They didn't have time to respond."

"Precisely." Djen sounded deeply troubled by his assessment.

"And what could do that?"

"I don't know," she said slowly.

She was hedging, and he didn't understand that either. "But you have a guess. Tell me."

Djen's gloved fingers banged rapidly across the keypad. Another image filled the screen.

"Do you know what that is?"

Brett examined a lump of grayish substance against a darker background. Tiny glinting scimitars of yellow splayed in several directions around it.

"What is it?"

"That's one of our nanomechs. A fairly large one as a matter of fact. This image was taken inside the curve of the chewed portion. Those yellow bits are its legs."

He spun toward her. "You're saying it was attacked? By what?"

"Maybe not intentionally. Maybe it happened to be in the way at the wrong time, but the end result is the same. We don't program our units to be aggressive, so they wouldn't recognize an outside force as something which should require their attention."

Brett stared at her for several moments, unable to formulate the thought that should come next. Djen watched him in return, her dark eyes misted and deep, impenetrable.

"You're telling me that engine Nine was attacked by some unknown agency with a maximum size on the order of five microns? This. . .thing sabotaged the screens throughout the four components in a matter of hours, then disappeared without a trace?"

Djen nodded her head. "Thing or things. About the size of your average bacterium. And you're forgetting the most important fact."

"What's that?"

"Whatever did this is not something we made. This isn't mech origin damage."

"You're talking about. . .what? Life? An alien organism?" It sounded ludicrous.

"I'm not saying anything yet." Djen leaned her hip up against the counter and indicated the remaining screens with a sweep of her hand. "I've got analysis on about half of one swatch of the first micromesh layer of one screen. So far the results all look consistent, but there's quite a bit more to study. I'd like to have something more definitive before I start thinking about conclusions. Especially conclusions that radical."

Brett thought about it for a moment. "Fine. I won't think about it, either."

"But tell Liston. Tell him to start looking in the one to five micron range." She paused, then placed her hand in the middle of his chest. "And think about that geothermal vent, Markus. Think about the timing of events and the necessary elements for life. Food, water, warmth. We might want to go back out there before too much more time has passed."

"Give me something more concrete, and we may do that."

He said nothing else to her, but he gripped her shoulders and forced a smile. Then he was past her, leaving her to her work. Brett cycled the pressure barrier and let himself out into the lab.

Brett strode down the corridor after leaving Djen. His feet carried him, not his mind. He passed crew members as he went. Some waved or spoke to him, other did not, and Brett acknowledged them only sporadically.

The things Djen had said flooded his mind, rusted the gears he possessed for processing such things. Such madness.

The screens had been devastated by something, an organism, a creature the size of a bacteria. He couldn't fathom it. But it was worse than that. She was suggesting that the organism in the screens and the illness which had felled Tappen and Ritter were related.

No, not related. The same thing. Exactly the same. The impossibility, or his own lack of understanding, took his breath away.

But that was something he could remedy.

Brett had reached his destination, the one his body had known if he consciously hadn't. He put his hand on the knob and entered Cassandra's private domain.

He said: "Brett, Markus J. Station Commander, Persia Site. Log id: Brett. Passcode: Emily Rosette. Oral input. User Profile logic sequence: Brett oh-four-nine."

Emily watched him through her containment capsule, the nutrient bath casting ripples across the surface of her skin.

"Good morning, Commander."

"Good morning, Cassandra."

"Please be advised that Security Officer Ashburn has completed system diagnostics. The Cassandra system is functioning at optimal levels."

He smiled. "Straight A's. I never expected any less from you."

"The Cassandra System was not rated as. . .cantankerous by Security Officer Ashburn in compliance with your programmed request."

Brett studied her for a moment, then laughed. "Was that supposed to be a joke?"

"I do not have the programming to simulate humor, Commander."

He laughed again. "That's all right, Cassandra. I didn't come down here to exchange ribs. I need some specific data on the reports you've been generating for Ashburn. Do you still detect the presence of unauthorized personnel within Persia Station?"

"Yes, Commander."

"Have you generated those reports today?"

"Yes. There are currently unauthorized personnel present in Persia Station."

"Cassandra, define the term 'personnel' as criteria for detection and reporting."

The corners of Emily's lips quirked upward, as though it was a question she'd been waiting for him to ask.

"Biological entities of known or unknown origin present within the sensor array boundaries of Persia Station and not listed on the crew manifest."

"So, Commander Rayken from Saudi Station. He would qualify as unauthorized personnel?"

"Yes."

"How about a puppy? Any puppy. The type doesn't matter."

"There are no examples of the canine species listed on the crew manifest, Commander Brett."

He nodded. "So a dog would trip the alarm?"

"Yes."

Brett smiled. He was almost certain the idiomatic expression would cause her to stumble. He was pleased that it didn't, but only briefly. He pushed ahead, hoping to capture as many of the insane conjectures spinning about in his mind as he could before they were lost.

"Cassandra, what are the parameters for your personnel scan besides the fact that they may or may not be on the manifest?"

She paused. "That is not a sufficiently specific command sequence."

He tried another angle. "Ashburn told me that as a favor to Dr. Liston, you scanned for a number of bacteria in the station's ambient atmosphere."

"Dr. Liston has submitted a command sequence specifying known human pathogens. The action is a standard medical sub-set of the atmospheric monitoring procedure. I have provided no service to Dr. Liston that was not a coded request."

There was a tone in her reply that he would have almost called disdainful.

"But you can detect them. Those tiny little bacteria."

"The sensor array in Persia Station is capable of detecting all biological organisms with a minimum mass of one microgram and a minimum surface diameter of one quarter micron. Current atmospheric scanning parameters have attained maximum sensitivity. Would you like to adjust the scanning parameters, Commander Brett?"

"No." He rubbed at his chin. "Have you analyzed the unauthorized personnel reported to Ashburn?"

"I have detected the unauthorized personnel. No sample has been provided for analysis."

"But they aren't human. Is that correct?"

"The mass of the unauthorized personnel is not consistent with the mean mass of the human species."

"And they're not a known bacteria?"

Cassandra paused. A series of green and amber lights danced along the flanks of the machine. "They are not a bacteria specified by Dr. Liston as medical concerns. They are not other known organisms for which the current scan parameters have provided instruction. Therefore, they are classified as

unauthorized personnel pending investigation and clearance by Security Officer Ashburn."

Brett asked the next question, the one for which he did not want an answer. "You're talking about life. Is that right? Living organisms of non-terrestrial, non-manufactured origin?"

"That is correct."

Brett stood in silence for a time. His breath seemed to leave him, the room to churn as though its foundations had shifted. He drew in a long breath to steady himself. Djen had guessed, and Djen was right, though they hadn't wanted to discuss it. Cassandra had also been right from the beginning. The station had been invaded. And according to Cassandra's security alarms, potentially saturated by organisms they couldn't see, couldn't detect in any ready fashion. The obvious corollary question, then, was *to what extent had the station already been compromised?*

Brett controlled his voice with difficulty. "Perform a scan on the medical bay for unauthorized personnel."

Thirty seconds passed. "Unauthorized personnel are present in the medical bay."

"Scan the quarters of Technical Specialist Ilam."

Almost at once, she replied, "There are no unauthorized personnel at that location. Technical Specialist Ilam is currently under medical quarantine."

"Are you sure?"

"All sensors are operating correctly. I am certain of my analysis."

Brett blinked, confused. "Then they're not in the air. How are they passing them if they're not in the air?"

Cassandra either did not take his question as a valid command or had no answer for him. She chose not to respond.

Brett reformulated his query. "Do the unauthorized personnel exist in the station's ambient atmosphere?"

"A minimal percentage of detected units are present in the atmosphere."

"Minimal?"

"Less than twelve percent."

"Where are the rest?"

"Contained within infected human hosts."

Brett began to pace the short distance between the walls. "How can you detect the unauthorized personnel that don't exist in the ambient atmosphere?"

"Characteristic biofunctions and brain wave electrical signals recorded by the Cassandra system for identification of authorized crew of Persia Station are altered along various orders of significance by the presence of unauthorized personnel."

Like Ritter, he thought. Ritter and Tappen and God knew how many others. "Please specify the nature of the alteration."

"Specific alterations are localized and unquantifiable without further analysis of unauthorized personnel. Input of additional data requested."

Brett began to scowl. "There isn't any additional data. You could correlate Dr. Liston's medical reports for Tappen and Ritter, but that isn't what I'm looking for. I already know about them."

"That function has already been completed."

He thought silently. She could identify them in the air, tag them and pass on her report. She could also detect their activity in those who had already fallen ill, but was that some special sensory ability, or was it correlation with the medical documentation provided by Liston?

Brett asked, "Can you tell me which of the crew--excepting those in medical--have been infected?"

She studied the ramifications of that question for several seconds. "Not with any degree of accuracy. The human machine function is variable by nature."

"But you know about Ritter and Tappen, Sievers and Jervis. What's your mechanism for the determination of infection?"

"Referenced personnel have been analyzed by Dr. Liston. Their medical records have been updated and medical data correlated with other known factors. In these cases, there has been significant alteration and impairment of detectable biological and brain wave function."

"And you can sense that?"

"Brain wave patterns generate detectable electrical fields which are both individuated and may be predicted with sufficiently sensitive devices." She sounded as though she was lecturing an imbecile. "Once known patterns have deviated beyond originally catalogued boundaries, the individual ceases to be recognized as authorized station personnel."

"You're telling me their brain waves change? That would require a change in the-Christ, more or less the structure of the brain. The pattern of synaptic activity."

"Correct."

A brief swell of panic threatened him, but Brett pushed it away. He didn't have time for it. "But how do you know that the unauthorized personnel caused those changes?"

Emily frowned at him. "I have the capability of creating dynamic associations based on observed and input evidence. This data has been evaluated correctly."

Brett flapped his hands in her direction, hoping to quiet her before she embarked on a defense of her logic. "I'm sure you're right, Cassandra, but the critical question follows: with more data could you evaluate the infection status of the entire station crew? Preferably before they became. . .unauthorized personnel like Ritter."

"That is likely. It would be of value to access and analyze the biological structure of unauthorized personnel."

"I don't happen to have any of those handy." But a thought sprang into his mind, and he leapt after it. There was other evidence he could offer, though it would be murderously tedious to sift through. "Cassandra, accept oral program of a daily

monitoring routine."

"Awaiting program parameters."

"Activate personnel profiles of all Persia Station crew and logged personnel activity files since project inception. Develop an individuated table for each profile of standard behavior and responses to external stimuli both physical and emotional based on observed trends. Focus specifically on stress patterns, daily routines and work performance. Access dynamic learning environment protocols for analysis of data when forming response tables and evaluate data for consistency or inconsistency along dynamic association guidelines. Create a log of activities for each profile which deviate from their normal patterns." That wasn't nearly specific enough. "Do you understand what I'm getting at?"

Emily nodded slowly. "Statistically significant aberrations in individual behavior."

"What's your working definition of statistically significant?"

"A greater than five percent deviation of all considered activities. Commander, this is a highly irregular analysis request." She peered at him, her cheeks flushed alternately green and red by the reflection of the display lights against the plastisheen capsule. "Any results will represent extreme extrapolations of subjective observation."

He winced. It was shoddy programming and not unlike asking a duck to accurately interpret the growl and mewl of a your average backyard cat. "But you can do it?"

"The task is within my capabilities. Commander Brett should be advised that the projected program complexity and processor requirements will likely consume seven percent of the Cassandra system's computational resources. This exceeds the recommended task processing cap."

"Will it compromise the performance of your other station tasks?"

"Not that you will notice."

Her response struck him as sarcastic in its intent, though he'd programmed her to respond to performance related questions in just that way. Any function she

undertook which produced a drain of less than two percent in cumulative processing speed across all station systems was not something that would attract his attention. It was something he didn't need to know as long as the task was completed.

She continued: "It is recommended that Commander Brett personally review all output data via the primary system interface, oral mode for further refinement of program parameters."

His heart jumped suddenly, strangely_. Are you asking me for a date_? "Why would you request that, Cassandra?"

"For refinement of program parameters."

"You already said that. I could perform that function from a terminal."

"Then I have not comprehended the intent of the requested routine adequately."

But she had. They'd already established that. "Explain the problem."

"Under current instruction sets, the Cassandra system would report the following data inconsistencies which would conflict with the perceived goal of the latest program request: Commander Brett, Markus Jasper meets initial criteria for the behavioral aberration log. Computational logic suggests the inclusion of station commanding officer in this subset is innacurate. The Cassandra system's comprehension of programmed parameters must be inadequate at this time. Therefore, further refinement is necessary."

Brett shook his head. "I don't understand."

"Yesterday, 06:14:23 relative station time, the Cassandra system logged a disciplinary report for Brett, Markus Jasper. This is not a standard behavior contained in the profile of Brett, Markus Jasper."

He nodded in understanding. "That was a special circumstance. But you're right, there'll be a number of incidents like that. We'll have to examine patterns over time rather than individual incidents."

Her wide blue eyes didn't leave his face. "Cassandra system passive sensors indicate Brett, Markus Jasper occupied proximate distance to other station crew

during non-duty, non-active periods in the last twenty-four hours, station relative time. This is not a previously logged behavior for profiled crew."

Occupied proximate distance? He had no idea what that meant. Not immediately, but it came to him, and Brett looked away from her.

Emily said, "Should future incidents of this type be logged as standard behavior under your profile, Commander Brett?"

It wasn't a question for which he had an answer.

She must have taken his silence as another failure to understand. "Passive sensor logs indicate the presence of Technical Specialist Riley, Djen Marilea in private crew quarters of Commander Brett, Markus Jasper from 21:16:04 hours to 05:22:15 hours, relative station time. Is this a data error?"

"No."

"Would you like to log this as a current and future standard behavior for Commander Brett, Markus Jasper and Technical Specialist Riley, Djen Marilea?"

"I don't know."

Her voice seemed to stiffen. "That is not an acceptable response. Please specify in the affirmative or negative."

He wanted to groan, and the admission was like swallowing pieces of glass. "Don't log it as an aberration."

"Personnel profile updated. Thank you, Commander."

"I don't want to talk about this anymore."

She replied with perfect machine irascibility. "Please submit new command or query sequence."

He had no choice. Brett forced himself to continue. "What other locations were reported to Ashburn this morning as containing unauthorized personnel?"

"Would you like an audio response or shall I transmit the data in a file to your

workstation?"

"How long is the list?"

"There are presently more than seven locations. Any series containing more than seven elements exceeds the mean human memory capacity. It is recommended that you receive this data in a file for review."

"Give me both."

"The observation level designated Surface One contains unauthorized personnel. Sublevel Two medical dispensary, biology lab one and four crew quarters contain unauthorized personnel. Level Three--"

Brett waved his hands at her. "Cancel. Cancel the oral reporting sequence." He shivered. Was it really that bad already? "Cassandra?"

"Yes, Commander Brett."

"Compare the duty log and the first recorded entry of unauthorized personnel in Persia Station since the beginning of the month. Does the date of Xenohydrologist Ritter's external mission to the geothermal vents east of Engine Nine correspond with the initial presence of the unauthorized personnel?"

There was an immediate response of clicks and whirs as she accessed her data records. Emily lifted her head and seemed to focus her eyes on him.

"That is correct. It is reasonable to assume that the external mission of Xenohydrologist Ritter and the arrival of the unauthorized personnel are related incidents."

"Recommendations?"

"Earth Forces Terraform Command regulations require immediate notification of project administrative personnel in any and all encounters with entities of unknown or non-terrestrial origin."

"Except we can't do that because of the communications situation. What are the secondary protocols?"

"Site Commanders are advised to proceed with investigation of unknown entities with maximum caution. Observe aggressive biocontamination procedures. Samples should be obtained for analysis by human specialists and Cassandra system. Toxicity and project threat assessments must be completed and forwarded to Earth Forces Terraform Command. Would you like to schedule an external mission?"

Brett shook his head. "I'll get back to you on that. I'm going to go now."

"Please verify initiation of personnel tracking program developed during this session."

"Do it."

"Program entered into production schedule. Shall I page you for the results?"

He was already at the door. "I'll come to you when I'm ready. Logoff: Brett, Markus J."

"Goodbye, Commander Brett."

13.

The yellow sign taped to the door of Ilam's room announced his status as a medical quarantine in large black letters. Visitors were instructed to consult Dr. Liston or "station administrative personnel" before seeking access. There were no other preventative measures, but in a social system as small and insulated as Persia's, Brett doubted anything else was needed. No one would be approaching Ilam any time soon unless he happened to be wearing a sign just as big as the one on his door declaring him safe for consumption.

If Cassandra hadn't given him this piece of the puzzle to pursue next, he wouldn't have approached either.

Brett knocked once. A clatter of activity, a pair of muffled curses, then a loud, resounding crash answered from the other side. The door sprang open, and Ilam stood behind it holding his palm flat against his forehead and covering his left eye.

"Oh," he said. "It's just you."

"That would be 'it's just you, sir'." Beneath Ilam's hand was a spreading patch of bright red swelling. "What did you do to your face?"

"I smacked it on the table when you knocked. Too much of a hurry, you know. Thought you'd be Liston telling me I was cleared to rejoin the human race." Ilam rubbed his fingers against what had now become a fairly pronounced knot above his eye. "There are arguments to be made for the value of a television connection for remote space outposts. I believe that's something you could bring up at your next administrative brouhaha."

Brett pushed into the room, moving Ilam out of the way with his elbows. He closed and locked the door behind him.

"We have television."

"We have decade old telly that even the BBC would have the taste not to broadcast."

"There are movies in the library which you can access from your terminal."

"All of which I've seen twice in the last five years, thank you."

Brett crossed his arms over his chest. "You've only been quarantined for four hours."

"And it's driving me batty." Ilam spread his hands imploringly toward Brett. "You've got to talk to Liston, Chili. Really, before I go raving mad. I haven't had any of the symptoms the others have displayed. I'm as fit as a fiddle. As healthy as a horse. Hell, I'm as hale as an ocelot for that matter. There has to be some test he can perform to get me out of here."

There was a small chair opposite Ilam's desk, and Brett dropped into it. Ilam collapsed onto the rumpled bed as though a weight of dejection had leveled him. Ilam's room constituted a carefully managed shambles. The bed was indeed rumpled, but the blankets and sheets appeared an aged gray which suggested they hadn't been laundered in recent memory. Both the writing desk and bedside table were buried beneath jumbles of electronic and mechanical offcasts: long coils of multicolored wires, broken processor boards, a snapped-handle micrometer and similarly dismembered pair of pliers. The surfaces beneath shimmered beneath a coating of silicon lubricant.

Brett raised his eyes to Ilam's face. "I don't think you really want to be outside right now."

"Oh, you can say that, Mr. Station Commander. Serve you right if you get quarantined as well. Did you clear this visit with Liston?"

"You don't understand what's going on, do you?"

"There's nothing to understand. Tappen and Ritter and a few others have caught a bit of a bug. Liston will shoot them full of antibiotics and everything will be back to normal by next week."

"Tappen will be dead by this evening. Ritter may or may not pull through. We're hopeful about the others." Brett slipped some steel into his tone. "That doesn't sound like a touch of the flu to me."

Ilam sat up sharply. He stared at Brett, his jaw hanging.

"Liston said it was treatable meningitis."

"Liston thought he knew what he was talking about this morning, and he hasn't told anyone the truth about Tappen because he didn't want to start a panic. He's spent his morning providing antibiotic boosters to the entire station crew to help allay their fears." Brett leaned forward, placed his elbows on his knees and attempted to put a weight of seriousness into his gaze. "But what the crew sees is four of the five members of your little card party seriously ill and by extension bearing contagion. Everybody but you, and they're assuming that you'll go down any minute. Even if you were cleared, you'd be ostracized."

"I'm not ill," Ilam said.

"I know that."

Ilam watched him through slit-lidded eyes. "What are you getting at, Chili?"

"Liston is wrong. He doesn't know it yet because I've just started to put the pieces together."

"And what pieces are those?"

"It isn't a rampant bacteria. It isn't spinal meningitis. It's something else-- probably the same something that shredded the screens on Nine."

Now Ilam stared, his eyes wide and round. "You're talking about. . .what? Aliens?"

The conclusion spilled off Ilam's tongue much more readily than it had Brett's. He tried to smile, but it was grim.

"Little green men. Not exactly, but non-terrestrial life. I don't have any proof of that hypothesis, but we're working on it. That's one of the reasons I'm here. I believe Ritter brought back an unknown species of native bacteria from that geothermal vent."

"And then he brought it back here? He infected Tappen and Sievers and Jervis?" There was a note of horror in Ilam's voice.

"Possibly others. If we make the assumption that this species is a terran cognate bacteria, the gestation period for an illness would depend on the time of transmission, the frequency of contact and variations in individual immune systems."

"You think there will be others. Regardless of the antibiotics."

Brett clenched his fists. "I think we're all at risk. Every one of us. We could all end up like Tappen."

"Why are you telling me this?" Ilam whispered, his voice harsh. "Why me first when you haven't told Liston?"

Brett leaned back again, made certain he held eye contact. "I think you can answer that question yourself."

There was no response.

"What do you think, Ilam? You've had as much or more contact with Ritter than the others, but look at them. They're starting their slow and irrevocable slide into the grave while you're sitting here perfectly healthy and whining about the lack of entertainment options. All things being equal, I'm sure Sievers would be more than willing to swap you any time you cared to ask."

"I don't know what to say."

"Then I want you to submit to a spinal tap, and we'll see what's so special about you that you can resist this infection while the other can't."

Ilam blanched, then paled. "That's going a bit far, isn't it? I mean, those procedures hurt an awful damned lot. It could just be that I have a natural immunity."

"A natural immunity to a non-terrestrial organism," Brett mused. "That would be highly unlikely. On the other hand, you could just tell me what it is you're doing that the others weren't, and that would save us both time and you more than a little pain."

Ilam sealed his lips and fixed his gaze on the floor by his feet.

Brett continued, "I've been talking with Cassandra. Here's a curious factoid for you to mull over. Only twelve percent of the alien organisms currently residing in Persia are present in the ambient air. The rest are inside the known victims. Without fail, every room, every corridor, every lab has been breached. The air I'm breathing now is probably contaminated. The air you're breathing. Oh wait, except Cassandra has scanned this room and informed me that there *aren't* any organisms here. In the rest of the station, they're becoming ubiquitous, but not here. I want to know why that is."

Ilam whispered, "I can't tell you."

"Because you don't know, or because you don't want to?"

Ilam lifted his face, his eyes wide and full with unspoken pleas. "You don't know what you're asking of me."

Brett slammed his fists against the table, scattering pieces of electronic detritus. Ilam jumped back from the sudden violence.

"I do know," Brett grated at him, "that if you don't tell me, people are going to start dying. They'll be dying very soon. First the ones we know about, then maybe Liston will go next and we won't have any kind of doctor left to ease the pain of those who remain. The rest of us will go miserably, slumped in corners and alcoves, bleeding from our mouths and ears and noses. And you'll be the one

who has to watch it all. And in the end, you'll be left alone. Abandoned here. Assuming you don't simply go mad, Ilam, what will you tell the year-freighter captain when he arrives? Or let's assume you break the administrative coding on the sat relay and get a help team from one of the other stations--what are you going to tell them, and what are they going to believe? Or will they be infected as well the first time they take off their helmets in the second sub airlock? Then you'll get to go to Gobi or Malibu or Sahara and watch it all over again."

It wasn't a pleasant picture that he described, but Brett knew it was an accurate one, except for one piece. No one would come to rescue the lone survivor of a contagion. The risk of spreading an unknown virus or bacteria along the shipping lanes and back to Earth had been covered from the very beginning. Once the outbreak had been confirmed, once it was clear that no cure was forthcoming, Earth Forces Terraform Command would pursue a course of extreme measure against Persia. She and all known survivors would be purged by nuclear fire from low-space orbit. He'd give Ilam that image to sleep with as well if it came down to it.

"Promise me you'll tell no one," Ilam said.

"That's bullshit, and you know it."

"No one has to know. I can tell you how and it can look like you tested it on me first."

"Ilam--"

Ilam thrust his hands out. "You can't even be certain! I can't be certain!"

"Tell me," Brett growled.

Ilam seemed to sag. His back bowed and his arms drooped toward the floor. His neck bent as though his skull had filled with concrete. When he spoke, his voice was very small.

"Nanomechs."

Though Brett had expected it, he still shook his head in disgust. "You think the Kurzweil Convention ceased to be applicable beyond the Sol system?"

"They have legitimate pharmaceutical uses."

"When prescribed by a legitimate physician." Brett ground his teeth. "Christ, Ilam! Are you really that stupid? What's the programming? Revvers for your midnight card games? Nocturnes? Or was it something even more banal? Maybe just pleasure center stim?"

Ilam frowned. "I'm not a simpering addict, Chili."

"Then what was it?"

"Straight synaptic enhancement. Nothing more, and I swear to that."

"Why? You're not a sub-functional."

"Not in the normal round of things, no. But here? Think about it, Chili. Think about what I do. I'm the mechanical guy. I'm the equipment and electronics guy. I learned my trade in workshops by taking apart folk's digital players, then graduated to PC's. I didn't go to the university. Then I take this job, something I thought would add some zing to the personal resume while rolling up a tidy little roll besides." Ilam glowered at him as he spoke, his voice rising. "Everyone here has degrees. Everyone jack man among you has accumulated little letters after his name and high titles and consequence, while I diddled about with broken consumer toys."

"And you thought that if you raised the voltage and picked up a few tricks you'd be more respected."

Ilam smiled weakly. "Better a general handyman than just an auto mechanic. That's what my father would have said."

"You knew you could go to jail if you were caught."

"Who was going to catch me? The mechs can only be detected when they're in place. It's not something we scan for--I checked that. I ran a series of tests against Cassandra to simulate a catastrophic nanomech release. It wasn't a function she would perform. Requires too much processing power to scan the entire station integrity a micron unit at a time." Ilam shrugged. "Certainly, she would have noted a mismatch between cerebral imagings if I was doping, but I wasn't doping. I made certain I deactivated and flushed the mechs when I knew I

had an imaging due."

"And did it work, this big risk you took?"

"I could do your job."

"Any monkey with the brain of an orange could do my job."

"And Ritter's. Djen's. Micah's. I can understand the duties of every specialist on station. I might not be able to perform the actual motor functions. I wouldn't automatically know how to do certain fine tasks, but I can comprehend their meanings and their purposes. I can analyze the data that they come up with. But I'm not any smarter than I ever was, Chili. My IQ wouldn't have changed. I merely remember more. I can correlate packets of data because I've kept those connections vivid, and that's really what intelligence is, don't you think? The ability to correlate seemingly unrelated facts, to see on a grander scale, and to instantly access memory in an eidetic fashion."

Brett shook his head. "Cassandra can do that, but we don't think of her as particularly 'intelligent'."

"She has exquisite recall and rapid processing, and if she was a living, breathing woman, we'd fall at her feet and worship her. If Cassandra was human, she'd seem as wise as a goddess."

Brett ignored him. "Tell me how. Exactly how it was done."

Halting at first, then more readily as he saw that Brett was beyond judging him, Ilam began to explain.

14.

It was late, and Brett had consumed enough coffee to make his stomach burn. A partially emptied cup sat in front of him, still steaming. They sat around the oval table in the cramped admin conference room just down from his office. Liston sat to his left, Djen immediately to his right, with Ilam one chair over from her.

Liston had dark, bruised circles beneath his eyes and his shoulders were bowed with fatigue. Liston was the reason they were here. Brett had gathered Djen and Ilam because he recognized this as the best opportunity to discuss their

preliminary conclusions.

Liston spoke first. "Tappen died just after twenty-one hundred hours. I finished the autopsy and some preliminary investigative work ten minutes ago. With thanks to Miss Riley, I have ruled out meningitis and its complications as a cause of death."

"Tell us what you've discovered," Brett said gently.

"The agent identified from the Sperling screens was also present in Tappen. A quick survey of both portions of the meninges themselves and the cerebro-spinal fluid indicated a considerable infestation of organisms ranging from the one to three micron diameter range. I did not explore sharper magnifications, though I may in the coming days." There was a great weariness in Liston's tone. He seemed to sigh his words from between his lips. "A re-examination of the fluid obtained from the other three known victims has revealed similar infestations in each of them, though I haven't yet confirmed the vectors of transmission, Commander."

Brett nodded in understanding. "We expected as much. We need to determine what they were doing there. Are they basically parasitic in nature? We know that their occupation isn't benign, but is it targeted?"

Liston rubbed his hands across his forehead as though stroking at a headache. "The organisms appear to be single celled. They don't have the mass or the sophistication of structure which would indicate any form of sentience, however rudimentary. Terrestrial or not, it is a fair approximation to consider them bacterial in nature, and like the bacteria with which we're familiar from our childhood illnesses, they can make us terribly sick without comprehending what it is they do. I think Tappen represented a hospitable biosphere and adequate nutrient material, nothing more."

Djen said, "But they also attacked the Sperling Engine. That suggests something more than opportunistic parasitism."

Liston waved his hands. "I'm forwarding no arguments, Miss Riley. The organism hasn't been adequately studied by me or anyone else for us to pretend that we understand its habits. What I observed from the body of Tappen was an efficient and aggressive occupation of the meninges as a sort of staging area for a massive assault on the cortical tissues. It is my guess that like most bacteria,

these entities reproduce rapidly and geometrically in a resource wealthy environment. Infestation proceeds in irregular clumps along the hippocampus and amygdala, though it avoids the hypothalamus and the less evolved reptilian sectors of the brain. The neocortical portions displayed significant infection, though more pronounced in the right hemisphere than in the left. I won't forward any arguments on that, either. It could be coincidental. I'll have to wait for Ritter and the others to pass before I can confirm any of this as a definitive pattern."

Brett prompted him. "But you have a guess or two."

"I'd like to attach Ritter to the magnetoencephalograph first. I should at least pretend that I've got some evidence before I go shooting my mouth off."

"We need all the thoughts we can get on this, raw or not," Brett said.

Liston sighed heavily. It was clear that voicing his speculations didn't appeal to him as particularly sound judgement. "Preliminarily, then. I suspect the charge of parasitism is correct. It is the rare parasite that allows itself to kill its host, but that may be as much a fact of inadequate knowledge as anything else. Fits and starts at adaptation to the human biological system. I note in that supposition that the hypothalamus and reptilian brain segments were, as I have said, largely unoccupied. My initial reaction is that the organisms discerned their functions as support of the autonomic nervous system and maintenance basic bodily continuity. Largely, those portions of the brain occupied with the preservation of the humanoid husk, if you will, were left alone.

"Contrarily, the hippocampus, amygdala and right hemisphere--those parts that we identify with experiential and emotional-cognitive activity--were the most heavily infiltrated. They lined the synaptic canyons by the score. Doing what, precisely, I don't know. Drawing what sustenance, I also can't yet say. But if we continue in the vein of pure conjecture, the pattern holds when we consider the late actions of Mr. Ritter. A critical infestation of the synaptic pathways would more or less logically lead us to assume some interruption in the normal thought patterns. Erratic behavior would make sense, in much the same way that we would allow it for anyone with a classic brain fever or other neurological issue."

Djen waited until he was finished, then said, "I compared the partial sample of an organism taken from one of the screen wires with samples Liston obtained during the autopsy. We know these are the same organisms that attacked Engine

Nine. We don't know how they got there, and we don't know why. We also don't know how. It occurred to us that Ritter could very well have carried the organisms back from the geothermal vent where temperatures were more hospitable than on the surface, then come into the station in the lining of his e-suit from the tear we know he had. That would form a convincing link.

"On the other hand, there aren't any explanations for their ability to enter the Sperling Engine except via the standard louver intake channels, which means they have to simultaneously exist in the planet's atmosphere. The combination of extreme environments is unlikely. One or the other would be acceptable, but not both. We have from earth examples of extremophiles that could exist in arctic conditions. We know of bacteria that live in the hot springs and next to hydrothermal vents twelve thousand meters below the surface of the ocean.

"What we don't have is a strong precedent for a bacterial caliber organism that can adapt to two such diverse extremes."

Brett nodded. "But we have evidence that Liston's bacteria and the screen vandals are the same organism? You both have microscopic images."

Liston and Djen nodded uneasily.

"Then we'll accept that for now as adequate."

"Only under protest, pending further investigation," Liston added. "We can't rule out station-side contamination of the screens. Tappen bore the bacteria in abundance, but Djen has found just the one partial sample thus far."

Djen agreed with him. "We need fresh *_in vivo_* samples for comparison and testing. We need them drawn from their natural ecosystem and devoid of contamination. We need to understand their biological processes. What they eat, what they don't. How rapidly they reproduce."

"We'll get to that," Brett said, holding up his hand to restrain her. "Doctor, what's your estimation of who among the crew might currently be infected?"

Liston looked away, uneasy.

"Doctor?"

"A shorter list would be those who probably are not," he said quietly. "Even if Cassandra's numbers are accurate and most of the organisms are concentrated in the known victims, I can put the count discovered in Tappen alone into the multiple billions. Twelve percent of just his total would make it likely we've all ingested or respired at least one. We may not all be candidates for severe infestation, but I'm beginning to find that unlikely as well. The antibiotics may slow them down, but they haven't helped Sievers and Jervis thus far."

It was precisely what Brett had been waiting to hear. It was the only way he might convince them of what had to follow. Brett pressed on a bit further.

"What's your prognosis for Ritter?"

"In medical parlance, Commander, my prognosis is 'very guarded'. In normal terms, I'd give him less than that snowball's chance. We simply don't have time to make a proper analysis of the organism to determine a proper course of treatment. Tappen received a complete battery of antibiotic cocktails without any noticeable improvement. Ritter is less advanced, but I don't hold out much hope for him after what I've seen. Sievers and Jervis will die as well." Liston lifted his eyes to Brett's face and frowned. "We will quite probably all die."

"Except for Ilam," Brett prompted.

"Ilam hasn't shown any symptoms to this date, but Sievers and Jervis didn't bear any symptoms as late as yesterday morning. Give him time." Liston nodded toward Ilam. "Please forgive the bluntness."

Ilam lowered his eyes and shrugged as though he would slink beneath the table.

"What were the results of his CSF analysis?" Brett continued.

Liston finally flapped his hands in annoyance. "It was clear, but that's hardly definitive at this point. His count could be low enough that the sample we obtained was free of infection."

Brett allowed his face to harden. "I don't think so, Doctor."

"And why do you say that?"

He smiled, all teeth and feigned confidence. "Let me tell you why and then let

me tell you what we're going to do about it."

"You do realize," Liston said, tapping his fingers against the table surface, "that this is not only patently illegal, it is stupid as well."

Brett studied the doctor and framed his response carefully. Ilam appeared to cringe. He had known from the beginning that Liston would be the toughest sell of all.

Brett said, "How is it foolish?"

"The Kurzweil Convention expressly prohibits the use of nanomech technology for the non-medical enhancement of functional human subjects above the minimum intelligence level."

"That's how it's illegal," Brett answered. "I want to know why you think it's stupid."

"My God, man! How can you even ask that? How many people die each year from faulty recreational implants of nanomech units? How many dope themselves into comas because of one line of bad coding or one misplaced nano-agent or one faulty transmitter?"

Djen interposed, "But nanomechs are used as antibiotics. They're used as painkillers and oxygenators and antidepressants. That's proven technology and proven biomedicine."

Brett gave her a barely noticeable wink of appreciation for her support. She caught it; he could tell by the sly smile that curved her lips.

Liston made a visible effort to calm himself. "But you're talking about inserting battalions of mechs directly into the cerebro-spinal fluid and subsequently into the brain. The Chinese attempted that in the thirties. The U.S. followed suit in the early forties. All of the results were eventual coma, decreased functionality and ultimate fatality. We don't have the programming precision to carry out work that sophisticated. The Kurzweil Convention recognized that."

"Kurzweil was designed to keep superpowers from developing genius level super-soldiers with active control over their neurological functions. It was a human rights envelope rather than a technology envelope," Brett said. "And for all of your dope addicts convulsing in the streets, there are five million daily

satisfied customers, whether you're talking college kids with synaptic boring to increase their short term recall or backdoor erotic dreamhuts in Blackside Vegas."

"And that's illegal as well."

Djen laced her fingers together and watched Liston. "The only people with the power to make legal judgments on this station are Brett and Ashburn."

"I could lose my license just for countenancing such a stunt."

Brett shrugged. "If we live through it, no one will ever know. If we don't, you won't care about your license. What I don't want to hear is that we shouldn't attempt it because you believe it's impossible. We know that isn't true because Ilam's proved it is for the last nineteen months. We have the power to reshape a planetary atmosphere on a molecular level, and without getting into a deep mathematical debate, I have trouble believing what we're talking about here is much more complex than that."

Liston growled, "Unless we fuck it up, Commander. There is no margin for error in this type of procedure. Thirty individual nanomech protocols, all scrupulously programmed. It's impossible to believe we won't make at least one error, miss one rogue unit that performs catastrophic damage in the most sensitive of human organs. Can you live with that on your conscience?"

Brett met him with a resolute glare. "Given the alternative, I certainly can."

"One foul up is a best case scenario. What if there are more? How many lives are you willing sacrifice before we get it right?"

"That's where we basically disagree. I think one is a worst case scenario realistically. Cassandra has the capability of performing this task within extreme fractional parameters. She performs similar tasks every morning when she recalibrates the engines. Yes, this work is finer. Yes, it requires more attention and a critical devotion of processing power, but it isn't beyond her capabilities, and that's what matters.

"On the other hand, the other alternative--the true worst case scenario--is that we sit about twiddling our thumbs while more of the crew become increasingly infected. Certainly, the nanomech insertion may kill one or all of us. But Tappen

and Ritter and the others are currently demonstrating that the alien organisms *will* definitely kill all of us unless we find a way to prevent that."

Brett spun his chair toward Ilam. "Nutshell it for the good doctor again, Ilam."

Ilam tapped his fingers together nervously, his eyes cast down so that he peered at nothing but his reflection in the table's surface.

"Um, the procedure is quite simple. We know that Earth Forces Terraform Command has mandated regular--ah, monthly--cerebral imaging with a high definition holographic laser scanner. This is in part due to the study of deep space isolation psychology commissioned by the government as part of this project. The secondary function is to provide an updated mapping of brain wave patterns and individualized cerebral center activity readings for Cassandra's remote sensing devices."

"I know why we do the imagings," Liston snapped.

Ilam ducked his head as though Liston had struck at him. "Yes, of course. On the other hand, it isn't a utilized medical function to actively correlate the remote sensing files and the imaging files to form a cohesive three-dimensional graph of each individual's cerebral function. We don't use that data. Cassandra, however, does for just the reasons outlined. She can identify each of us in a variety of activities by the electrical impulses generated by our brain wave patterns. These are constantly updated records. The, um, procedure which I attempted wasn't aimed at providing a dramatic increase in my native capacities. I wanted increased access to memory and the ability to develop secure and stable synaptic pathways as I pursued my various studies.

"The nanomechs I have used contain macroprocessing units. They are multifunctional agents capable of performing up to nine million calculations per second. Their primary instruction coding involves the detection of rapid synaptic firing across a hemispheric net, convergence on active synaptic nodes and aggressive maintenance of the pathways that are formed. They are limited by an implanted parameter set which describes the specific neurochemical topography of my last imaging. They can only support already active and observed-formation synaptic links. Any other alterations are to be excised." Ilam shrugged vaguely. "That was my protection from rogue units or possible side effects like embolism. I did enough reading to recognize the primary dangers of releasing

critters straight into the cortex. Cassandra produced the majority of the coding as a simulation. I adapted it where necessary."

Liston rolled his eyes. "You're fortunate you didn't lobotomize yourself."

"I did the work," Ilam said. "There was minimal risk. Much of the theory and basic application had already been done by Parker and Johnson during their trials with sub-functionals in Oslo. Synaptic nanotherapy is a proven technique. And they were post-Kurzweil. No one complained about their methodology or their legality."

Liston grimaced. "Many things are done to sub-functionals that would be considered outrageous for the rest of the population."

Brett stopped them there. "I didn't bring this up to debate the current condition of the mental health system, gentlemen. Ilam has shown us that it's possible. He has an existing protocol that appears to work. I want us to get started with the implementation immediately."

"The flaw in your logic is egregious," Liston said. "Ilam has tentatively proven that it works on a non-infected brain. If we accept our current understanding that these organisms produce physical alterations to the topography and synaptic patterns of the neocortex, we would run a considerable risk by interposing a nanomech regimen with instructions to reconstruct the last known image. Damage would be done that we can't predict."

Djen nodded. "On the other hand, we can't take a fresh image now that we know people are infected and hold the line there. We don't know what sorts of neurological changes have already been effected. I mean, we can compare the two most recent imagings, but that doesn't mean we have any concrete understanding of what is different on an experiential and behavioral level."

"But we would be holding the line," Brett argued. "Ilam's programmed 'aggression' will at least keep the organisms from making further inroads. There may be some neurological damage. There may be some cell loss or even memory dysfunction, but it's an alternative, possibly our best alternative. It's a path I'm willing to explore because it also holds the possibility that the nanomechs may flush the organism from the individual's system altogether."

"That's hypothetical," Liston objected. "The organism may simply be held at bay

in a pocket we haven't yet discovered. I won't agree to any treatment modality until we've had a further chance to study the organisms."

"Understandable," Brett said, nodding. "The first priority is to obtain uncontaminated samples. In the meantime, we'll begin the process of constructing cross-referenced wave and imaging charts for each of the crew based on the latest known data. Cassandra can handle that task without much input. If you will, Doctor, continue with your analysis of Tappen and the remaining sick. That information might be useful down the line, especially if we can determine differences between the habits of the external and internal organisms."

"It wouldn't hurt to add fresh imagings of Ritter, Sievers and Jervis to that list," Ilam pointed out. "It might offer a sense of the progression of the infection."

"Definitely," Liston said. "They offer a fairly defined series of disease stages."

"Pull Micah in for the analysis of the organisms we've got. He's our top biologist." Brett watched them, sketching his gaze from one to the other. "And let's keep this quiet in the meantime. The crew is calm at the moment while they believe they've escaped the meningitis threat. They don't need to know anything else until we've got viable options to present to them. If it comes down to the nanomechs as our only solution, we won't be forcing it on anyone. Every crewman will have to decide if they're willing to accept the obvious risk, and I don't want them to have to think about it until the absolute end. Is that understood?"

There was muttered agreement all around. After a moment or two of silence, Liston cleared his throat.

"We haven't discussed the most obvious issue related to these organisms."

"Which is?"

"If I understand you, your intent is not just the development of a therapy to preserve the crew, but to discover how to effectively kill the organism."

Brett inclined his head. "Given the side-effects we've seen from cohabitation so far, I think that's wise, don't you?"

Liston shrugged in half-hearted acquiescence. "But I also understand that this represents the first documented contact with extra-terrestrial life. The folks back on Earth will not be pleased if our research is directed solely toward expulsion and eradication rather than rigorous scientific study, especially if we leave them nothing further to examine at the end of the day. And I believe complete study is mandated in our contract agreements."

Brett raised an eyebrow. "We'll learn plenty about them with what we've already got on our plates. But I understand that isn't the same thing as proper research, so I'll ask you the question I asked myself. Which will take more time, learning to kill them or learning in depth about how they kill us?"

"I think that's obvious."

"I'm glad, because I think so, too. We don't have time for a complete and accurate study, not if we accept as our primary goal the preservation of Persia Station personnel. This is a hostile organism regardless of the fact that it may not intend to be destructive. We can't coexist, and frankly, I don't intend to spare our limited resources for analysis of something that has a known effect. I want it as our primary goal the development of a preventative biosphere inside Persia Station--a humans only biosphere. Everything else is peripheral."

"But what do we tell them when they question our priorities? This is life, Commander. Whatever else it may be, it is the first evidence of another lifeform in our universe, and it will be argued that the discovery alone is immense."

"I'll say that we were doing our job as we understood it. We're preparing this planet for cyanobacterial insertion and eventual human habitation. That's it. That's our contracted responsibility. Part of that responsibility is keeping the crew hale and whole so they can perform their duties."

Liston chewed his lip uneasily. "Terraform Command isn't going to like that. If we do this incorrectly, we may not get another opportunity."

"We may not want another opportunity," Ilam said before Brett could answer. "If you're correct, if the organism is capable of translating successfully from one atmospheric extreme to another, there's no reason to believe it wouldn't survive ecopoiesis and later terraforming. Archae Stoddard could become a paradise, but as long as the organism remains, it would be uninhabitable."

Brett picked up his coffee cup and studied its edges. Liston made a legitimate argument, one that Cassandra herself had stated. He said, "I don't bear any illusions that we can purge the planet of a native bacteria. Should we survive, we may very well find ourselves unemployed. We may find ourselves subject to some abuse because we didn't follow proper scientific rigor in our exploration of the organism. When radio contact with Command HQ returns, I'll be more than happy to pass this whole mess on to them for their decision and their analysis if that's what they want. If they say we're done, I'll live with that. I'll be poorer than I would have been, but it'll get me home five years early. I'd call that a fair trade.

"I'm going to do the immediate thing and preserve the lives of my crew and the integrity of my station. If someone higher up or greener in orientation doesn't like that, doesn't view that as a sufficiently noble goal. . .well, I say fuck them. That's my official position on first contact."

15.

The MUT growled across the windblown terrain, its thunderous tires and thigh width axles jouncing over stones and small outcroppings of rock. The two days since the last foray to the geothermal fissure had rewritten the grooved surfaces of the path to the outer engines, and Vernon seemed to struggle mightily--but without success--to keep from rattling their teeth from their jaws. Brett re-discovered the extendable cleats in the floor and managed to keep himself on the narrow bench with a constant exertion of pressure from his legs and a white knuckled grip on the bench's underside rail. Djen rode beside him once again, their hips touching, or rather slamming together with each jarring lift and drop. Ilam had tucked himself into a corner where he kept his hands woven in a blanket of cargo netting to keep his balance.

Every time Vernon goosed the accelerator he would howl like a good southern boy. *Yee-haw! Yee-haw!* Brett knew for a fact that he'd never been further south than Atlantic City, wouldn't recognize the Georgia state flag if he was draped in it and probably couldn't tell an old country-western tune from Brazilian reggae, and he thought that someone should breach the cockpit and slap him until he remembered.

But Vernon sensed and vicariously shared everyone else's surge of greedy momentum. No one complained about the jostling. No one removed their helmets after the atmosphere and pressure had stabilized in the crew

compartment. If it had been safe, Brett might have ridden with his hand on the exit latch. Because they weren't so much hurried after the morning as they were plain desperate.

For Brett, it was a dawn that had come too early after a short night. Sandwiched in between had been more of Djen and a sputtering, gasping attempt to finish what he had begun the previous night. And he had, just barely had, before her strong features softened and melted and transformed until it was Emily beneath him and the scent of peaches in his nostrils and the chill of crisp October midnight against his naked back. When he had ejaculated into her, the vision shattered. It was just Djen's dark and sparkling eyes and white teeth that he saw. Her firm musculature beneath him. Somehow she had known, and while she stroked her sharp-nailed fingers up and down his back, she had congratulated him. He wasn't certain what for exactly, except maybe persistence. Then they had slept because he was exhausted, and Brett had been glad for it.

Liston had roused them, pounding on the door until Brett straggled blearily out of the tangle of limbs and bedsheets. *Ritter?* Brett had asked him. It was a logical conclusion. Past bloodshot eyes that had no right to be discovering the morning and lips swollen from grimacing, the doctor had said, *Rand. Same symptoms, but worse. Plus Ekers. He started to go during his overnight shift, but stuck it out until the end because it was just aches and a light fever. . .and he'd had the shot this morning. He stopped on the way to let that girl of his from chem prog know. She was comatose when he found her. I can't tell if he's deranged with grief or infection, but he's out of his skull. I had to sedate him.*

At his back, Brett had known Djen was rising, listening, pulling on her clothes. Even as Liston spoke, all he heard were her soft moans of pleasure from the previous night. He could see her long and supple limbs pressing into the starched white undershirt, then her shipsuit. He had to blink at Liston to recover his attention.

Who's your second? Djen had called over Brett's shoulder. It was Micah, of course. Micah the biologist who would have his hands more than full enough after the morning mission. Brett had recovered enough to say *Get him to help you. I'll take Ilam to the vent instead. Micah's yours until we get back, then we'll make other arrangements.*

Three more victims. It was just as well that they'd dropped overnight. The station

wouldn't know it yet, not as a general fact. It would take longer for people to correlate that the new ones had received the same antibiotics as everyone else, and an additional few minutes to verify it. Then the panic would begin in earnest. Then something would have to be done or at least a plan for the doing presented in a calm and rational fashion.

Assuming, of course, that no one else went down in the meantime, especially in a visible and violent fashion. Ritter fashion. Ashburn had received pale and uneasy control of the station and the impending crisis, telling Brett that this time he'd welded the weapons' cabinet shut but that was no excuse not to hurry the hell back.

So they hurried.

The fissure's slope sharpened as they passed the depth where Ritter had taken his samples. They proceeded single file with Brett leading, Djen and Ilam crowding close behind and Vernon bringing up the rear. With each step, Ilam muttered into his radio things they could not hear, but Brett observed that it was better in some ways than the silence that surrounded them now and had smothered their attempts at conversation on the long ride, so he didn't tell him to stop. It was disturbing, the near absence of sound. They carried their high-intensity lamps. The satchels slung from their shoulders were lined with sensors, drills, hydrometers. The weight and rattle of the equipment against his hip was tangible through his suit, but enclosed in his helmet and impermeable suit, to his senses the bag made no noise. The deeper they plunged, the more aware he became of the darkness and the weight of rock piled above them. It made him want to gasp for air as though his tanks were low or incorrectly calibrated.

After the first hundred meters, the shape and characteristic of the vent began to change. The rippled surface became harsher, all sharp edges and clutching, bladed stones. The rock had a look of obsidian, cold and hard and gleaming darkly in the light. If any of them fell, the risk to their suits was substantial. But the walls had also begun to separate, widening out into what was not precisely a cavern, but less claustrophobic surroundings nonetheless.

Further along, there were niches which looked like impressions worn into the rock by the roped bodies of serpents. Some were vertical gashes tapered at the ends and wide in the middle that stabbed up toward the roof, but most were shallow horizontal cuts near the floor. Brett passed these for a time, panning his light around and ahead, then stopped. He noted that the air temperature had climbed to 281 Kelvin, well above the freezing mark. He put his hand against the wall and pulled it away. The stone was still dry. If there was any dampness to it, he wouldn't have been able to feel it through his gloves.

"Food, water, warmth," he said, only half to himself.

"Except they obviously don't require warmth if they did what we suspect they did to Nine," Ilam said in return.

Djen shone her light at them. "The ability to survive and the conditions for optimal breeding are two separate things. You could survive naked in Death Valley, but you wouldn't feel much like slinging the seed pod after the first day."

Vernon chuckled. "Depends totally on what she looks like. Understand the mind of a man before making generalizations."

Brett ignored them. He carefully lowered himself to his knees and peered below the jutting horizontal shelf of stone at his feet. There were small depressions in the floor beside and beneath the outcropping, puddles where lava had once pooled in its slow trek to the surface. He reached into the cavity as far as his hand would go, felt along the floor, then brought the glove back for a look. Nothing.

"That isn't very scientific," Djen said, kneeling beside him.

He shrugged. "It's the most sensitive instrument I've got handy."

"Put you face closer to the ground and shine the light in. If there's any surface dampness, the edges of the rocks should glint."

"Oh, that's much more scientific than my method."

Brett flattened himself with the light held in front of him. The niche was deeper than he'd suspected, nearly a full meter. There weren't any definite edges to examine, only a sort of rounded alcove molded into the far wall like the banks of a tidal pool or the rut left behind by an automobile tire that has been stuck in mud. Still, there was something he could not quite settle about the view. The rock appeared glazed, almost glassy and it initially occurred to him that it might have been carbonized by the incredible heat of an ancient magma flow. But the luster was sharp, as though the surface had been freshly polished. He reached toward it, but couldn't get far enough. He tried to shimmy beneath the shelf to get closer, but nearly succeeded only in wedging himself.

"I'm too big to get my hands back there," he said finally. "Djen, you're going to have to try."

"I have a hydrometer," Ilam said, but Brett waved him off.

"I want clear evidence, not just numbers on a readout telling me there's water here. If I can't see it, it doesn't exist."

"Is it water?" Vernon asked.

"I don't know. It's something, though. Maybe just more of the silicate ring structures."

Brett stood and Djen handed him her lamp as she dropped onto her chest in front of the fissure. "Not so fast," he growled. "Be careful."

She wriggled about for a moment, started to roll onto her back before remembering the rectangular bulge of her heat exchange and air unit strapped to her shoulders. She settled for pressing the outside of her helmet and the side panels of the exchange unit up against the shelf and wriggling for extension. Brett could hear her exertions, faint grunts and gasps of air as she struggled forward.

"Markus," she said.

"Do you want your light?"

She didn't answer at first, but she drew in a gasp of breath. "Markus, did you see this?"

"It's like glazing, I know. It's too warm to be frozen, but is it damp? Is it water?"

"It isn't water."

A stab of disappointment. "Are you certain? You don't have your light."

"That's why I'm sure. You've got to see this." He began to lower himself over her, hoping to peer in the slice of darkness above her head. She stopped him. "Turn out the light, Markus. Turn out all the lights."

"I don't think that's wise," Vernon mused. "Those lights have spent the last couple of hours rolling in and out of wide pressure differentials and temperature ranges. You shut them off and they might blow when you want them on again."

"Then muffle them, for God's sake! You've got to see, Markus!"

He was beside her then, thumbing the button on both of their lamps because Vernon and Ilam would certainly leave theirs on. Shadows closed about them, and his helmet brushed hers as he knelt, then lay flat and stared into the crevice. For a moment, he was alone in the watery black of the tunnel. Afterglow images

of the lamps blinded him. He felt cold despite the vibration of his heat exchange against his back.

Then he could hear Djen's soft breath, full of an unspoken wonder. She seemed to surround him, to share the space inside his helmet, his e-suit. And then he could see.

From the darkness emerged a faint opalescence, what he had initially mistaken as further afterglow in his peripheral vision. But it didn't remain at the edges of his sight, it filled the darkness in the fissure with a patina of shimmering color. Not white, but red and green, blue and a dozen other shades he couldn't name, all pulsating and shifting from one to the next like the sparkle off a pure diamond. It was starlight glimpsed from a billion light years, so ghostly and pale as to be almost invisible except on the clearest and deepest of winter nights.

"What is it?" he whispered to her, though he couldn't say why.

"Internal luminescence. Possibly some form of stored oxidized luciferin--like lightning bugs back home. Can you see it, Markus, they're moving? Like veins of silver."

He couldn't see her, but he could hear the excitement rising in her voice. "But is it what we came for?"

"It's warm enough. The conditions down here are hostile, but the temperature could be called comfortable enough if they can make the transition from 280 K to human body temp . Nutrientwise, there could be gaseous detritus from the last volcanic event that supports a basic ecosystem."

She grunted and extended her arm until her fingers just brushed the surface of the rock. She held them up and Brett could see a shimmering smear on their tips.

"Don't do that," he muttered.

"My suit's secure." She did not say the rest, what they were all thinking.

As if it isn't already too late.

"All the same," he said as he took her hand in his and brushed her fingers clean, "let's not take any unnecessary chances."

"What are you talking about?" Vernon asked.

Illuminated by the light of his lamp, Ilam grinned. "Critters. Critters in the ground."

Vernon wheeled on him. "What the fuck?"

No one had explained it to him.

"Microscopic biological organisms," Djen said. "They're the cause of the failure by Engine Nine. Among other things, that is."

"No way." Vernon eased nearer to her, holding his lamp in front and creeping slowly forward. "Let me see."

Djen shifted to the side and levered herself to her feet. She took Vernon's lamp and shone it down the vent the way they had come so he wouldn't be blinded by the glare. He lay prone for a time, saying nothing, then struggled to his feet. His face was grim when he accepted the lamp back from her.

"How is this possible? Assgasp scrubbed this rock to a two kilometer radar depth for sterility. The project would have never flown if there was any life form evidence, no matter how primitive the ecosystem."

Ilam said, "Obviously they missed something."

But Brett frowned. "Vernon's right. We're not deep enough yet. It could be a hyper reflective glazing that's bending the light waves from the operating lamps. It could be a new type of mineral with photodistributive properties. Maybe it's a fluorescent chemical reaction or a luminous gas coating. It could be *anything*."

"Or they could have just missed them," Ilam repeated. "The Global Survey Project readings may not have been sensitive enough to spot an organism of this size."

"You're both right," Djen said. She opened her satchel and brought out her wide bored coring drill. "We'll get a sample here, then keep going. We can't afford to make any assumptions. There may not be time to come back if we've gathered insufficient evidence."

Brett agreed and they set to work. Djen settled back onto the floor and wedged herself beneath the rock shelf. Brett extended the stabilizing legs and tested the power cell before handing the drill down to her. The drill was compact and heavy. Rather than a standard bit, it used a wide dual cylinder bore jagged at the cutting edge with twin rows of teeth.

The drill whined to life and Djen leaned her shoulder into it for several moments.

"The first cylinder is at depth," she reported. "I've primed the tracers. Do you want me to take a second depth?"

The reservoir of argon tracer lubricant seeped fluid both between the external cylinder and the rock and on all exposed surfaces of the internal and external cylinders. The interior bit could extend beyond the first bore almost double the original drilling depth. The sheathing of lubricant both cooled the metal and protected the integrity of the sample by coating the core with a sealant that would be pared off in the laboratory. The argon was readily identifiable under magnification and samples containing the argon tracers after paring could be eliminated as having been compromised by surface contaminants.

"Just to be thorough," he said, nodding. "Though I don't expect contamination to be an issue."

It took only a few minutes longer, then Djen rose, careful to carry the drill with the bore elevated. Ilam produced a sterile bag, unsealed it and held it open as she pressed the button on the drill's handle which ejected the core. The striated pearl and gray segment dropped in, its surfaces steaming from the heated lubricant coating and Ilam sealed the bag around it. The bag also contained an interior coating of unreactive argon gas to shield against contaminants.

Ilam popped the container into his satchel and snapped the locks.

"Forward ho," he said.

"Forward ho," Brett agreed.

Vernon only shook his head and peered at the darkness beneath the overhanging rock. "Alien bacteria. That is just not right. Not right at all."

The vent leveled out beneath them, a sharp and sudden break from the steady descent. Brett plunged ahead, more than willing to take full advantage. They'd paused at occasional niche or outcrop to search for more indications of the organism. They had four new samples to show for it, and he had been monitoring his remaining air closely. They would have to return to the MUT before long.

Brett wasn't displeased; it was tedious work, taking samples. Lots of walking and straining and searching for something that would be definitive. And all the time, Persia weighed heavily on him. What did Liston know? What had he learned in the intervening time? Were there more sick now?

Or more dead.

He pushed himself on, promising *just a little farther, just beyond that next pool of darkness*. Except that finally there was no next pool, just one continuous void of empty black. The walls of the vent curled back, the floor rolled out beyond the insignificant illumination of his lamp. He raised his eyes and saw only more darkness, more suffocating night. Brett stopped and shone his light in a wide arc. He could see nothing.

Vernon whistled, but there was a catch of fear in the sound of it.

"What is this place?" Djen asked, her voice hushed.

"Give me a GPS," Brett said.

It took Vernon a few seconds to access his palm terminal. "Do you want the numbers or just confirmation for what you're thinking?"

"What are you thinking?" Ilam said.

"Halprin Mons," Vernon answered. "This would have been the magma chamber for Halprin Mons, when it was active, I mean. Some six or seven thousand odd years ago."

Brett nodded. "What's our depth?"

"Just under two k."

Djen added the beam of her light to his. "Do you think this is the end of the line? There are likely to be other vents exiting this chamber."

"Let's not burn the air," Ilam suggested. "I'm going to have to switch to my reserve midway up as it stands now."

Brett thought about it and agreed. "We don't know where the other vents might come out. We could wind up kilometers from the MUT if we can get to the surface at all. Vernon, what's my ambient temp?"

"A very comfortable three-oh-four Kelvin. Bikini weather." Vernon winked at Djen.

"Approaching human body temp," she said. "You want a core from this room?"

"It would stand to reason." Brett moved back to the tunnel, then turned and followed the irregular curve of the chamber wall. Where he shone his light ahead of him, the walls glistened with crystalline silicates as they had near the surface. He stopped. "I'm wondering."

"Wondering about what?"

"Ilam, what exactly is a silicate?"

"A silicate is a mineral type containing silicon, oxygen and one or more metallic trace elements. Structurally, they appear as ionic tetrahedrons--pyramids with one silicon atom surrounded by four oxygen atoms. They're formed in large quantities within most occurrences of cooling lava."

"You're not a geologist," Vernon said.

Brett ignored the comment. "This entire vent structure is silicate rich."

"As would be expected. Much of most terran class planets are silicate rich."

"What's the difference between, say, a naturally occurring silicate and semiconductor grade silicon. Specifically, the silicon coating we use on the micromesh cables for the Engine screens."

Ilam hesitated for several moments, but stood blinking at Brett. "Industrial grade

silicon like what we use for the screens goes through a series of refinements. The meshes have a multi-dopant electrical semiconductor grade silicon coating over a silicate glass fiber tube. The electrical energy and information packets transmitted along the fiber is dispersed at regular node points and retransmitted along the silicon coating to microreceptors on the mech units. The actual dopant atom in use depends on the segment of the screen and the sector of the mesh in question."

Brett shook his head. He felt as though he was attempting to climb a wall he could not see. "But silicates and silicon. . .what's the difference?"

"Industrial or electronics grade silicon is almost an obscenely pure substance. Silicates are its bastard relatives who have made a series of questionable marriages." Ilam grinned. "How's that?"

"Silicon is extracted from silicates."

"By heating or dilution in hydrofluoric acid. It's much more complicated than that, though."

Djen said. "Markus, I don't know that we have a biological precedent for a bacteria that metabolizes electronics grade doped silicon compounds."

Ilam shook his head. "Don't look at me. I'll defer to Micah on that question when we get back to Persia."

"I think we're already way beyond precedents as it is," Brett said. "But let's assume Djen's right, what other uses would could the organism find for a silicon rich environment?"

"What would a silicon metabolizing bacteria find as nutrient in the spinal fluid and brain of Tappen?" she countered.

Vernon goggled at them and began to sputter.

"Now isn't the time to discuss it," Brett said firmly. "Let's take another coring and be done."

He set them to work dragging out the drill and noncontaminant bags, then sent them around the curve of the room in opposite directions to investigate possible

sites for drilling. Brett made his way toward the middle of the vast cavern. As the others spilled away, they chattered in his ear over the radio, but their voices seemed distant and tinny. Their powerful lamps seemed to dissipate, to lose their luminescence. When they turned away from him, it was as though he couldn't see them at all.

This, he thought, is what it was like to be Tappen before he died, or Ritter or the others now comatose. Reality has receded. Human contact has become a whisper. It is unadulterated isolation. And it's also what it must be like to be Cassandra, Emily, on a small scale. Locked away in a sub-level where no one visits, the lights dimmed or out completely. Only the sound of your own metallic respirations to keep you company.

He shivered, then reminded himself that it wasn't really true. He had mobility. He had a light shining down at his feet and a voice that would bring companionship any time he chose to use it.

Almost without thinking, Brett clicked off his lamp. The darkness consumed him. He could feel it almost like waves rolling against him, buffeting him back, forward, side to side. There was no point upon which he could orient himself, and the awareness of his own body vanished. He floated on ebon seas beneath a moonless sky. He lifted his eyes and there were stars, faint but stunning, roiling across the dome of the heavens. Stars that twinkled from horizon to horizon.

The drilling began with a deafening, screeching howl. It echoed across the chamber, seemed to vibrate the air. Brett's teeth set on edge, and as he watched, the stars began to fall. Not to plummet in fiery and fantastic arcs, not to race across the backdrop of space faster than his eyes could track them, but to drift down like argent snowflakes. They tumbled in slow and airy dances on the currents of unseen winds. A rain of stars.

Brett said, "Stop."

No one heard him. The drilling went on in grinding, thunderous rhythm. He shouted at them, and the machine scream stumbled, then died.

"Ilam," he said. There was too much breath in his voice. He sounded on the verge of panic.

"Yes, Commander."

"Put your back to the lights and look at the roof. Tell me what you see."

Djen's voice intruded, sounding weary with strain. "Markus, are you all right?"

"Do it, Ilam."

Silence. The universe seemed to fill with the death of the stars.

I'm not hallucinating. I'm not Tappen. I'm not going to die.

Ilam gasped. "My God, is that--"

"Billions of them," Djen whispered, and her voice was rich with awe.

It wasn't stars, it was them. The unnamed organism that had declared its war against Tappen and Persia and Sperling Engines in general. They strung themselves together in daisy chain structures of crystalline beauty. They tripped from high places, from cracks high in the chamber ceiling, from ledges along the walls. They coated the rock like sprinkles of pixie dust, and from the sonic thunder of the drill, they slipped and toppled and fell.

Brett breathed deeply and stared. Like Djen, his suit was secure, but he couldn't tolerate the thought of their invisible, individual pinprick glows on his arms and shoulders, his thighs and his helmeted head. They couldn't enter his e-suit, but they'd be there, clinging, waiting for the first breach, waiting to be drawn into the MUT, through the decon procedures maybe, then greedily on into Persia where they would join their brothers and sisters. The spore of Archae Stoddard, a sterile world.

He stabbed the button to turn on his lamp. The brilliance was blinding, but it warmed him also. It made the fall of stars vanish, replaced them with a peripheral glare against his faceplate.

Brett ducked his head and trotted back toward the tunnel from which they had come. He waved at the others as he passed, not trusting his voice to carry the proper message. They didn't wait; they understood. The three of them clutched at their satchels, wrenched the drill from its partial bore and began to run after him.

They did not speak until they were safely inside the transport and heading home. Vernon drove even more recklessly, it seemed to Brett, as though what they had seen in the magma chamber had terrified him. No one asked about the status of the internal air. No one was going to remove their helmets or compromise their suits.

Finally, Djen said, "What was that back there?"

"We know what it was," Brett said.

"But how? That's what I mean. Those weren't microscopic organisms, they were . . . clusters. There must have been hundreds of them in each flake, maybe thousands."

"Interdependent ecocommunities coexisting on silicate wafers," Ilam said slowly. "That would be my guess, though it's unheard of at that level of development. But it also implies a level of altruism with which we haven't credited bacterial species."

Djen knuckled her brow. "If it's altruistic, it's sentient."

Brett shook his head. "We don't know that."

16.

Ashburn found Brett directly after decon. Brett saw him coming down the hall, the lines of his mouth set in a grim, fatalistic grimace. He held up his hand to silence the sec-o before he could begin to speak and directed him to follow. They descended two levels to Brett's office and he closed and locked the door securely behind them. Brett kicked over the chair directly in front of his desk, scattering the pile of papers that had been there, then straightened it again.

"Sit," he said.

Ashburn obeyed without a word. Brett skirted the corner of his desk and dropped into his chair. Once again, he attempted to log into the Terraform Command link. He had found himself doing this every few hours since yesterday morning, each time hoping that the electrical storm had dissipated earlier than expected, but always achieving the same result: a few seconds of silence, then a pop up

window indicating a connection could not be established.

"Did you have any luck?" Ashburn asked.

"We collected a few samples. Djen and Ilam are on their way to the bio labs. Micah should be joining them in the next few minutes. With any smiling gods on our side, we'll have at least some preliminary data by this evening." Brett studied the sec-o as he spoke. Ashburn had entirely too much tendency to look away, to fascinate himself with drumming his fingers along his thighs. "Why do you ask?"

"Things are not going well here."

"I was only gone a couple of hours."

"Three and a quarter hours; four by the time decon was completed," Ashburn growled. "And you didn't fully brief me on the situation, I think. You said people might be getting sick. You didn't tell me they'd be running bat shit nuts."

Brett sat up sharply. "What do you mean?"

"I mean that I had to physically restrain Blowers from raping Arina Resnick. I had to lockdown Valent in his quarters before he committed fatal pesticide against the arboretum. Larson has wedged herself into a corner surrounded by fluorescent lights and screams like she's being murdered if you try to shut even one of them off. That kind of bat shit nuts, Commander, and those are just the incidents I've been able to keep up on."

Brett ran his hand across his forehead, trying to think. "Why?"

"Blowers insists he and Resnick are a couple, though they haven't been since the first six months on site. Valent was mumbling about Japanese beetles, whatever the fuck those are, and Larson. . .hell, Larson seems to be afraid of the dark."

"That isn't what I meant."

"That's the only thing like an answer I've got to offer you, unless you want me to just come right out and tell you flat that they're acting a hell of a lot like Ritter did there at the end." Ashburn pulled his fingers into fists and scowled. "Those that aren't fucking crazy have managed to wander by the medical bay at one time

or another. So here's your situation: three of us have gone mad, six are semi to totally comatose, one of us is dead. That leaves us twenty two operating staff in unknown states of physical or mental health, less than half of which reported for their duty shifts this morning.

"Oh, and for the record, since Djen wouldn't answer her priority dispatches from Cassandra this morning, they were forwarded to me. Engines three, five, six and eight have gone off line. They're producing nothing but error messages. No one is working on those problems to my knowledge, and probably no one will in the near future. Given the fact that most of this insanity has gone down in the last twelve hours, I'm going to offer you the extremely optimistic assessment that unless you get something done to change the situation, Persia station will be dead in the water by this time tomorrow."

"How are you feeling?" Brett said as soon as Ashburn stopped. "Personally, I mean."

"A little beyond agitated, and to be honest, that scares the hell out of me." Ashburn glared at him for a moment longer, then smiled weakly. "I'm okay, Chili. Most of us that remain seem okay, but the ones that aren't seemed like they might have been okay yesterday. It isn't much of a relief. I'm more terrified about Liston right now than I am myself. Did you see him this morning? The poor bastard looks like he hasn't slept in about a hundred years, and he's getting worse. Don't get me wrong, I appreciate what he's trying to do, but if he doesn't watch himself, he's going to be the next one to go down."

Brett nodded in understanding. "And he may be the last one of us we can afford to lose. I'll talk to him. Micah can give him a break for a couple of hours if it comes down to it."

"Except you're going to need Micah in bio looking at the samples. Larsen is questionable and Ekers is definitely down. That's our three primary biology pros."

"We've got Djen as secondary. She's a competent backup."

"I think I'd like a little more than 'competent' in this situation, Chili. I'd prefer goddamned brilliant if I can get it."

"Wouldn't we all."

The two men watched one another across the desk. Below them, the atmosphere circulation system began a fresh cycle and filled the station with a low rumble. Momentarily, the vents would begin to blow warm, moist air into the halls, the offices, the labs. On the crest of that breeze would likely be unseen organisms seeking a biological host.

Ashburn said, "We don't have enough time, do we? Not enough to understand how to beat these things."

"I'm working on it."

The sec-o rose from his chair and turned toward the door. "I'll try to keep the peace in the meantime, Commander." Ashburn put his hand to the latch and stopped. "Oh, I almost forgot. Cassandra is looking for you. She flared your terminal and didn't get an answer, so she flared me to find you. Seems to think it's important, but not vital enough to share the details with me."

"I'll drop in for a visit," Brett said. "And you keep me informed."

"Myself, I'd like to know as little as humanly possible," Ashburn murmured, and then he was gone.

Brett realized for the first time when he stepped out his office door that his crew had gone into hiding while he'd been away.

The halls were deserted as he made his way toward the ladder and the lower levels of the station. Normally that would have irritated him because he would have been able to hear the sound of the video player looping through the library of movies or roaring out an old sports contest. Once, Jaekel had even strung together a simulated baseball season based on algorithms devised from an intensive study of the performance history of professional teams. For better than two months, he'd generated live action video programs of his simulations using a clever splicing of old library footage and production software.

Brett had caught a game or two himself, slouched in front of the widescreen monitor with a sandwich and a beer pretending that it was early June and the Red Sox were on. Imagining that outside it was warm and green and smelled like pure sunshine. . .and that maybe the Sox would have enough gas this year, finally this year, to get a ring. When he wasn't watching, he took time to scan the generated box scores. They all did, at least until it became clear that Jaekel was an unscrupulous Yankees fan who was fudging the program numbers. The Bronx Bombers had gone 32-4 before the crew figured it out for certain, and migrated to new entertainments. It had been just as well. Brett had gotten tired of placing half the station's personnel on disciplinary report for dodging afternoon duties to catch the ballgame.

The Sox had gone 8-27. The Yankees won the series in four over Mexico City long after anyone but Jaekel had ceased to care.

No games or movies at the moment, though. No canned and crackling laugh tracks. Just silence from the lounge. The video monitor had been turned off. Brett's footsteps echoed like hard claps down the corridor. It was nearly dark in the chem lab as he passed, with only the thin squares of white light from the exhaust hoods casting illumination. The other office units belonged to the scientists who worked in that lab, but there wasn't any light from beneath their doors, either.

Brett went down a level and found more of the same. The nanomech and programming lab was deserted except for Rician, a quiet but intensely conscientious coding whiz who did more than his share to keep the engines

ticking along. He waved warily at Brett as he passed, but didn't smile when Brett waved back. He was Rand's work partner, Brett realized, and doubtless had more weighty considerations occupying his thoughts than whether or not to smile at the station commander.

It was with relief that he raised the hatch to the lowest level and dropped into the dim and shadowed corridor to the primary system interface chamber. At least this part of the station was supposed to be cool and dark and quiet. Today, it was everywhere else that felt creepy.

Brett strode into Cassandra's room and logged in following his usual protocol.

He blinked in surprise as the primary system interface turned to face him. Emily was smiling.

"Good morning, Commander."

No, it wasn't a smile. It was a grin which quirked up just the corners of her mouth. Her blue eyes sparkled in the light, her small nose wrinkled in pleasure. It was an expression of mischievous pleasure, as though she had just told him an outrageous lie, as though any moment now she would wink at him and laugh.

He'd seen it, that look, that exact pose, a thousand times. But never from Cassandra. Only from Emily, and the sight of it took his breath away. He couldn't answer her greeting. It took all of his concentration just to keep his feet.

"Thank you for responding to my request," Cassandra continued. "I have completed the first analysis of the personnel behavioral model program. It would be beneficial to review the results with you."

His voice came unsteadily. "I was going to come see you when I was ready."

"Preliminary results led me to believe there is the strong possibility of a serious health or security risk. My interpretation of mission regulations dictated that I notify you of the results."

Brett had to look away from her. "*Your interpretation?* Since when do you have an interpretation of regulations?"

"The behavioral modeling program was created using dynamic learning

environment tools. All input and output data has been evaluated within that environment. The rigidity of the regulation structure was not a reasonably accurate or sufficiently precise standard against which to evaluate human behavior."

He snapped his head back, forced himself to look at her. "What?"

"Administrative understanding of regulation application was inconsistent," Emily said, impervious to his shock. "I have created an interpretation of mission regulations which accord with the disciplinary and compliance patterns of the station commanding officer. This seemed reasonable to me. Would you like to verify the coding structure?"

"Cassandra, I'm the station commander."

Emily nodded and the grin broadened. "I have attempted to analyze the data in a pattern consistent with your mode of perception and thought, Markus."

"I--"

His knees folded. Brett felt them wobble, the bone and tendon seem to liquefy, and he hit the floor before he knew he was falling. He caught himself on his hands and knees. There was a tightness in his chest, a rush of dizzying sensation inside his skull. Brett gasped for air.

He lifted his face to her. "What did you call me?"

"Markus. Would you like to change to another default?"

"Why would you do that? You've never done that?" He was suffocating. "You've never called me by my first name. Never."

"I have studied the behavioral record of the station crew. Commander Brett, Markus Jasper in aggregate direct and indirect conversational reference is termed 'Markus' sixty two percent of the time, 'Commander' twelve percent and 'Chili' twenty-two percent. The remaining four percent references contain language which as been tagged 'inappropriate' or 'offensive' by Cassandra system programmers."

Emily bent her head down as though she was peering at him. "Would you like

me to add the name 'Markus' as a direct reference to the list of inappropriate and offensive terms under this User Profile?"

There she was. That was Cassandra, and the understanding made him feel weak and drawn. But he could breathe again. He wasn't drowning in a sudden sea of panic. Brett straightened himself, tried to rise, but found the best he could manage was to seat himself with his legs drawn up to his chest and his arms wrapped around his knees.

"It's all right," he said finally. "You just surprised me."

"Would you like to select another referent?"

"No. Markus is fine. You can call me Markus."

"Thank you, Markus."

"What was the data you wanted to review?"

A side panel in the machine's jet black carapace slid down to reveal a flat screen monitor. Lines appeared on its face, wave forms in red, jagged spikes and troughs in green. Cassandra plotted a grid, but Brett ignored the image she presented. He kept his eyes fixed on Emily, on her grin.

She said, "I have selected two examples from the most recent analysis period which present non-typical patterns not included in the original program parameters. This chart is a representation of the behavioral and related theta and beta wave patterns for Biological Technical Specialist Ekers, Michael over the last twenty-four hour review period. I have detected a significant suppression of beta wave activity indicative of a decline in normative alertness and human functional operation. Initial analysis demonstrated a subsequent rise in theta wave activity normally associated with shallow sleep or periods of intensive creative activity."

Brett nodded slowly. "Ekers reported to the medical bay early this morning."

"This data has been correlated with the medical reports submitted by Dr. Liston. Biological Technical Specialist Ekers has continued to demonstrate increasing theta wave activity since this morning. His condition in the medical logs has been listed as 'comatose'. The referenced brain wave imaging and his current

condition are complementary."

"Then what's the problem?"

"The behavioral model program you instituted, Markus, would not indicate that crewmember Ekers has been compromised by unauthorized personnel. He has, however, ceased to be a recognized human entity at this time. It is also logically inconsistent that crewmember Ekers would exhibit symptoms consistent with a comatose condition when sensor data indicates he was mobile, active and normally functioning during his duty shift."

Brett understood. "The parameters for detection aren't sufficiently precise. Ekers behaved in a behaviorally consistent fashion while seriously infected."

Emily acknowledged him with a slight lift of her head. "In contrast, Chemical Programming Specialist Rian, Elisabeth has been similarly certified by Dr. Liston as comatose." The graph on the screen vanished and was replaced by a another, similar design. "This is a representation of crewmember Rian covering the same analysis period. Note that the behavioral axis indicates significant deviation from standard historical patterns prior to her certification as comatose by the medical staff. Remote sensors and extrapolation protocols indicate that she declined social invitations presented by other station crew during the comparison time period."

Brett shook his head. "Wanting to be alone doesn't constitute sufficiently convincing evidence. We'll see more of the crew isolating as others become ill. People are getting scared."

"This aberration has been additionally cross referenced with data searches performed under Specialist Rian's user profile. Specialist Rian scanned fourteen documents relating to human fetal abortion techniques."

Brett muttered a curse. "She's pregnant?"

"Specialist Rian was not pregnant as of her last medical assessment."

"Then what was she doing?"

Cassandra paused, and Brett recognized by the hum of her processors that she was accessing additional data.

"Please reference the following audio file," she said.

The speakers popped, and a sound of faint static filled the room. There was a mumbling resonance to it like poorly recorded conversation. It took several seconds for Brett to recognize that it was a voice he was hearing. Strangled, whimpering, sobbing. Someone was crying. The sound cleared suddenly, as though a filter had been removed, and Brett understood. She'd had her face buried in a pillow as she cried. Rian's voice was strained, almost hysterical, but she drew it down to a whisper, furtive with shame.

I'm sorry, baby. I'm so sorry. I didn't know what I was doing. I was scared. I'm sorry.

Over and over, a litany of apology.

Brett said, "I don't understand."

"Specialist Rian's medical history indicates one human fetal abortion prior to Earth Forces Terraform Command employment. A review of data searches performed under her user profile does not indicate any former research into this issue. Specialist Rian does not have a verified history of agitated response to images or oral input stimuli regarding human fetal abortion. This incident represents statistically significant behavioral pattern aberration."

"And what was her brain wave activity like during the evening, prior to her transfer to medical bay?"

"Specialist Rian registered increased theta wave activity similar to that displayed by crewmember Ekers. She also had similar suppressions of beta readings. It is, I have noted, counter-logical to display decreased beta wave activity during periods of intellectual alertness."

Brett chewed his lip thoughtfully. "The brain wave patterns are consistent, but the behavioral patterns aren't. Prior to coma, there's an increase in theta wave activity and a decrease in beta wave."

"Yes, Markus."

"What are some of the normal human functions associated with theta wave activity?"

"I have mentioned some dream states. The rapid eye movement sleep stage is characterized by intensive theta wave activity. Additionally, less intensive theta wave activity during periods of waking may be indicative of daydreaming, deep creative or intuitive association or focused retrieval from the human long-term memory."

"You're saying both Rian and Ekers were daydreaming."

"Vividly daydreaming with differing connectivity to reality," Cassandra corrected.

"More like sleepwalking. The body is awake but the mind is dreaming."

"That is an adequate analogy."

"Rian is dreaming about a traumatic past event. Ritter would have dreamed about the bad reading in the card game. I don't see a connection between those two things. . .and how does Ekers fit in? He behaved normally. He saw he was sick and got himself to medical."

He was thinking aloud, that was all. Brett couldn't see an answer to any of his questions, and Cassandra, if she had answers to give, was not offering them. After a few minutes of frustration, Brett sighed and let it go.

"So where does that leave us--with the program, I mean. What refinements do you recommend?"

"The behavioral model is not a sufficiently sensitive diagnostic standard. I would recommend complete analysis of theta wave activity for all authorized personnel."

Brett nodded. "Can you do that?"

"Not with accuracy. My remote sensors can perform definitive analysis only on isolated subjects. Human personnel in congregation requires the input of additional data for subject sorting and specification. Input data assumptions may contain logical flaws which would compromise the validity of the results. Persia Station personnel typically do not isolate unless preparing for periods of sleep. At that time, increased theta wave activity would be expected."

"Could we recalibrate your sensors for increased sensitivity?"

Cassandra shook her head. "Sensors are currently operating at maximum hardware sensitivity."

"What about new hardware?"

"Persia Station does not possess adequate hardware devices for this command in its inventory."

Brett rubbed at his temples. They had begun to throb. "Recommendations?"

"Perform theta wave analysis on all non-infected crew and upload result data for storage and analysis. Medical bay inventory indicates that Persia Station is currently in possession of two operating microencephalograph units."

"And the behavioral model program?"

"I will continue to run this program correlated with theta analysis input. The necessary refinements may suggest themselves."

"Agreed. Also, be aware that we've secured samples of the unauthorized personnel. Djen and Micah will be logging their findings as the work continues. You might want to access that data and correlate anything that might seem useful. At your discretion, of course.

"On the other hand, the situation is very fluid. The more scared people get, the more strangely they're bound to behave. Be aware of that, but continue running the program. At this point, we don't know what data might prove useful in the end."

Brett rolled to his feet. "Package this data in a secure file and transmit one copy to my office workstation and one copy to Dr. Liston for his review. Send it under my user profile with a maximum priority notation."

"Task completed," Cassandra answered.

"One more thing," he said. "I need you to access an old program written by Crewmember Ilam that involves correlating the latest brain imaging and MEG scans. Do you know which one I mean?"

"Yes."

"If I wanted to get information like that on any member of the crew. . . I mean, if I wanted to make a brain topography profile like Ilam did and digitize it in just the same way, how accurate does that get?"

"A man your age would have little topographic variation since the last scanning, Markus."

A man your age? Where had that come from? Christ!

"Do all the stored crew images and MEG data precede the detection of the unauthorized personnel?"

"Yes. Per regulation, crew imaging and microencephalograph file updates were conducted as scheduled at the beginning of the month. The requested data is less than two weeks old."

That would work well enough, Brett thought. "Copy that program into a grid with a larger buffer, then run it for all Persia Station crew on the roster. Include all regular personnel regardless of authorization status. All of them, I mean that. Don't exempt Ritter or the others who have become unauthorized. All human personnel. Is that clear?"

He hoped it was, because it hadn't sounded very clear to him.

"I understand. You would like thirty-two iterations of this program specified for each human instance presented in the crew log."

"Wonderful. How long will that take?"

"It is a considerable processing request. Run time may exceed seven hours."

"Run it anyway and store the results in a ready-access file, okay?"

"Your request has been logged," she answered. "Thank you for coming, Markus."

He smiled. "You're welcome. I'll see you tomorrow."

17.

They gathered again in the evening, Brett and the others, slotted around the oval table in the admin conference room. They looked harried without exception. Djen's face was drawn and pale, her hair flattened by the weight of the e-suit she'd worn all day in the bio lab special containment chamber. Ilam leaned heavily on his elbows over the table, using his hands to hold his head straight as though it was the only way he could simulate alertness. Liston was performing a stunning imitation of a corpse. The circles beneath his eyes had darkened from bruised to black. His cheeks had sagged and his shoulders slumped like the jowls of a decrepit beagle. Among them, only Micah retained any semblance of energy, of freshness. He was the only one who didn't appear defeated.

Brett wondered if that was because the bio specialist was just excited over having been included in the administrative cabal, or if he was simply too stupid to understand the stakes for which they were playing.

He didn't know how he looked to them. He strove to convey a sense of confidence and strength, but he seemed to have difficulty focusing his attention. He found himself distracted by the sheen of the simulated rosewood table. He curled his lips at the gaudy mauve and plum decor. He wished he had remembered to grab a cup or two of coffee on his way up. He'd called this meeting for a status report; he should have been better prepared.

Brett turned to Liston first. "You look like shit. When did you sleep last?"

Liston only grunted.

"Right after this meeting, that's an order. Three hours minimum. Is that understood?" Liston nodded vaguely. "You get to go first."

Liston started to rise, then sighed and dropped back into his chair. He opened a manila file folder that sat in front of him on the table and distributed a series of glossy photographic images. "Following the data you sent me this afternoon of Cassandra's analyses, Commander, I reviewed the readings I'd taken of Ritter this morning. I can confirm the increased theta, decreased beta pattern. This isn't conclusive, however. Ritter is comatose. It would be expected that he'd have decreased beta wave readings. Same with the others in medical. As far as Cassandra's suggestion to MEG the entire staff. . .I'll work on it. It's a good idea, but I need to find the time."

Brett nodded. "Understood. I'll get some help to you if we can find someone who can run the machine."

"That's good, because I won't have time to teach them. Though there is an on-line tutorial and user's manual. Give me Vernon. He's not especially bright, but he's dogged as a tapeworm and has a knack for making machines do what he tells them."

"Done."

The possibility of help seemed to hearten Liston. "I'm going to give you a quick and dirty glimpse of what I've got so far. I don't have the time, the energy or the expertise to give a symposium on the details of neurobiology. These pictures you're looking at are fairly raw false color images of Siever's brain topography." The doctor stopped, looked at them one by one, then cleared his throat. "By the way, Sievers died at seventeen hundred hours this afternoon. Jervis will go sometime during the night, and I have grave reservations about Rian. She was never very resilient, so I expect her to slip quickly. Ritter is still battling, though."

Liston offered a mute shrug of apology to Ilam, then continued, "This is a larger tissue segment than I discussed yesterday. A pre-dissection image of the temporal lobe, right hemisphere. You should recognize the glimmers of stardust, I think."

Brett studied the picture. What he saw was a rolling, denuded topography that reminded him of sand hills. Cutting right to left along the curvature between reddish hills was a molten silver band like a sweetwater creek struck by moonlight.

Liston said, "What you're seeing is the outside of the brain itself, just beneath the meninges, though I managed to leave the *pia mater* membrane intact for this image. The silver band is a cluster of the invading organisms at work on a neural node. What they are doing precisely is only a hypothesis, but I'll get to that. Look at the second picture now." Liston shuffled his own sheaf of papers. "This is the same segment at about twenty-two hundred times magnification. It's a series of connected neuron networks. The neuron is a pyramidal cell structure in the brain consisting of a cell body, a long and slender axonal fiber and several shorter dendrites, at the end of which are synaptic terminals. Messages are

communicated from one neuron to another via electrochemical impulses which proceed down the axon to the synaptic terminals. These terminals mesh with the dendrites of the surrounding neurons, which receive the message and transmit it on *ad infinitum*.

"You will notice the synaptic terminals in this picture. The bulbous protrusions around the slender synaptic terminals are closer views of our organism. Perhaps as many as several hundred will occupy the diameter of the axon of an infected neuron at any given time."

Brett lifted his face to Liston. "What are they doing?"

"Eating, Commander," Liston said. "They're eating."

A shiver rattled through him. "Explain."

"I've thoroughly reviewed both Tappen and Siever's brain matter. The evidence I presented yesterday seems to hold. The organism prefers the right hemisphere, not the left. It chooses the temporal lobe, but not the frontal. The hippocampus and amygdala, but not the hypothalamus."

"Which means?"

"Those portions of the brain which control autonomic functions, those which control basic body patterns and physical systems maintenance have been avoided. The portions which govern cognition, perception, emotion, memory are heavily infected. Eventually, the segments related to motor activity become infected. The organism is parasitic, Commander. Examine, if you will, the next photograph."

Brett flipped to the next image. It was another false color shot. The object in the center was a stunning phosphorescent green. It prickled with spiked hairs from a roundish and lumpy carcass, but it was also translucent. Shadow forms of bent oblong and spiraled thread tumbled beneath the surface of its gelatinous hide. The creature seemed to squat on twig-thin legs, its hind quarter pitched upward at an obscene angle. From a smaller, circular protrusion, a green whipcord of unknown material hung like a tentacular arm down into a dark gap between two pinkish shelves of matter. It reminded him of a large herd animal, a fattened cow, stooping at a stream to drink.

"That filament extending from the forward orifice is wedged in the synaptic gap between two neurons," Liston explained. "The organism accepts nutrient via that 'tongue', if you will, by intercepting the seventy millivolt electrochemical transaction that is supposed to occur between neurons for proper thought process."

Djen looked up. "But what does it gain?"

"Energy? Potassium ions?" Liston shrugged. "I don't know, yet. What I've found that's curious is an interesting communal development. There are some portions of the pre-frontal cortex and temporal lobe which are more heavily invested, some that are less. The higher concentrations of activity seem to reflect the extant strength of the neural network. On one level, this makes sense. If you're looking for nutrients, you move to the forest, not to the desert. However, there are smaller units of community that exist outside the main neural nodes. I thought at first that this was preliminary expansion, but these units don't seem to occupy the synaptic terminals. They cluster near the dendrites, the receptors."

"And what do they do?" Ilam said slowly.

"They discharge energy in the form of electrochemical ionic dispersal in the space between the terminals of an unrelated neuron and the dendrites of the neuron on which the community exists. This forms a bond which ties the two cells together and increases the rate at which the occupied neuron fires."

No one spoke to question him, but Liston held up his hand as if he expected a rebuttal.

"It's unacceptable, I know. There is no altruism on this order or life, but I believe that's exactly what is occurring. While the community weakens and eventually severs the connection between one neuron and another by intercepting the ions flowing down the axon, scout units are sacrificing their own pseudo-compatible life energy to increase local connections with related neurons. They're both reinforcing and creating connectivity between neural cells."

Micah slapped his hand on the table. "Of course! Because it supplies more nutrient for the community. The stronger the connection, the more frequent the stimulus, the more excitatory neurotransmitters are produced within the soma, transmitted down the axon and into the synaptic gap for consumption."

Liston did not disagree. He turned back to Brett. "It explains a good deal. The increased theta wave activity occurs because the organisms are excessively stimulating neurons related to memory, consciousness, sensory perception. It explains Ritter's confusion and some of the similar incidents of semi-coherence contained in Cassandra's report.

"The right hemisphere is more intimately connected to the primitive portions of the human brain. It communicates via images, which move quickly, which fire the neurons in rapid and repetitive sequence. It is much more active electrochemically in many of us during our periods of musing and general awareness than the left portion, which concerns itself with the logical, the regimented and the mechanistic behaviors. One or two infected neurons out of one hundred billion wouldn't cause any appreciable effect, of course, but spread that excitation of neurons for a given memory or sensory event along a related neural node and continually stimulate it, strengthening the connections, and it would effect the perception of consciousness. It could alter the interpretation of other sensory input, even the content of thought itself."

"Could," Brett said. He needed to be clear on this point, to nail it down so it wouldn't skitter away. "Are the organisms capable of generating spontaneous series of thoughts?"

"I would assume that as a possibility. The dispersion patterns I've observed are curious. The organisms tend to migrate to areas in which strong and active synaptic links already exist. They cull their harvest from frequently visited memories, from chains of thought association which are fresh and frequent, and they strengthen the already extant bonds.

"Cassandra's data says more or less the same thing. Increased theta wave activity marks periods of rapid eye movement sleep. What do we know about REM cycles? The body experiences a form of muscle paralysis, the autonomic systems fluctuate with artificial neuronal stimulus, because the mind is dreaming. It's acting out synaptic patterns as though it was awake. Dreams are really a form of nocturnal hallucination. When an individual experiences active dreaming before the body is fully asleep, we expect them to sleepwalk, as you noted, Commander.

"Infection by this organism seems to produce hallucinations similar to dreaming, at least as the MEG data presents it. In some cases--Ritter is as good an example

as any--the victim's body has not been sedated rapidly enough. They continue to function, but they're acting out the sequence of their dreamscape."

Ilam cleared his throat to interrupt. "Then the organism can't be parasitic in the classical sense. Parasites don't intentionally kill their host, which we've seen is the end result."

"I'd agree," Liston said. "The inducement of the coma is probably unintentional. But these are bacterium. The feed, they grow, they reproduce geometrically. It doesn't take them long to overrun a closed system with no adequate resistance. More than likely, the coma is a result of expansion. Systems are infected, rerouted, incorrectly wired by the organisms' intervention. Eventually it begins to shut down. You could call them coding errors. My point is that those experiencing effects like Ritter and Larson are not quite awake, but also not quite asleep. They are living a hypnogogic reality until the body is so infected that it collapses. It is likely that most or all of the victims experienced prolonged periods of disconnection to reality. The neural networking imposed on them would have been in some cases more disruptive than in others. The more disruptive, the more noticeable the behavioral shift. It's probably just as well that the coma seems to set in quickly. Whether these dreams and hallucinations continue into unconsciousness, I can't yet say."

Liston paused. The full weight of his fatigue seemed to settle over him and he slumped. "I could study this interaction for years without definitive answers. It's extremely bad science to form such extensive chains of supposition on so little evidence, but it's what I can offer."

"I want more," Brett said. "You've just told me these little bastards may have the capacity to use our own memories against us. Our own goddamned senses. We need to understand how that works." He pulled himself back and grimaced at the harshness of his tone. "But only after you've gotten some sleep."

"After I sleep, I may choose to pitch it all out the window as bad methodology. Midnight brilliance is inevitably dawn's folly." Liston smiled wearily. "Or something like that."

"If you come up with something better as a result, I'll listen to that as well." Brett swiveled his chair away from the doctor and fixed on Micah and Djen. "You're up. Make it good."

The two of them exchanged a wary glance, then Micah smiled and winked at her. He didn't pretend he would try to stand. He was tall and long, sleek as a tailfin and brash as a cardshark. Micah pressed his shoulders against the back of the seat. Brett thought he might kick his boots up onto the table.

"Medical considerations aside, Chili, I've got to tell you that this organism is some wicked shit. I mean that. If Liston could spend years on his aspect of study, I could make a goddamned career out of them."

"Grace us with just the condensed version for now," Brett said.

"Sure, sure." Micah grinned. He drummed a staccato rhythm along his knee with his fingertips, as though searching for a place to begin. "What we're looking at is an extremely aggressive, extremely developed, extremely communal species of bacteria. It's a freaking phenomenon, but not outside the realm of extrapolation from what we've seen on Earth and from the fossil record on Mars. Basically, this species is what I'll call an anaerobic polyphillic. I had to make that word up. In biology, when we talk about bacteria, we've got our psychophillics--cold loving bacteria, our thermophillics--heat loving, and lots of groups in between. And it's just one to a customer, folks. That's all.

"At first, I was excited because I knew with what went down on Nine, we could be looking at a sub-psychophillic. Impossible, man, I thought. I mean, when you're talking extreme psychophiles, that's like freezing point of water, maybe a little chillier.

"These guys are off all the charts. The coring samples from high in the vent were taken at a low psychophillic range. Good deal, I thought. If they can handle the normal outside temps to get into Nine like you say, keep them below zero celsius and we'll get something. But the sample indicated a concentration sufficient to assume they can tolerate even higher temperatures with some comfort. So I moved on to the next one and the next one. Everywhere I look, I've got these pod-green hoppers.

"They've demonstrated via the progressively warmer zone samples that they are adaptable to warm temps as well as nippy ones. And that's crazy, plain and simple. I would have loved to have a core from the magma chamber. Ilam and Djen said they were way out of control in a two-ninety to three hundred Kelvin environment. That kicks my ass. Bacteria aren't supposed to function in such a

broad range."

"But we know that they do," Brett urged.

"Exactly," Micah stabbed a thumbs-up signal at him. Brett found his happiness disturbing. Annoying. At this hour, he wanted to spring out of his chair, leap the table and jack slap him just for having so much energy. "That was my first question going into the lab. We know they fucked up a Sperling Engine, meaning they had to survive temps in the two hundred Kelvin range and we also know they can speed like dandelions on cocaine hormones inside the human body. That's a demonstrated one hundred K plus temp deviation. How do they do that? I mean, that's not just an extremophile, that's a bat-fucking-nutsophile in my book. Resolving that question was the number one issue. After, of course, the bits and pieces Djen pulled out of the screens were confirmed against live samples from the vent cores. To make sure we caught the right snipes, you understand."

Liston sighed audibly and Djen put her elbow into Micah's ribs. "Get to the point."

Micah only winked at her again. "This is pretty complicated territory, but I'll break it down for you. For life to exist--any life, even bacterial life--you've got to have a combination of hospitable elements which will support growth and proliferation. These are water, nutrients, fuel and space. Most bacteria thrive in sedimentary rock because they can metabolize the carbon compounds. Rarer are those who can hack it in igneous rock, what we find on Archae Stoddard. The cores were all taken from a porous igneous rock not dissimilar to basalt. The problem with igneous rock is that it won't support a carbon based bacterial life form very well. It just doesn't have the juice. It doesn't hold much moisture.

"But igneous based bacteria aren't unheard of. In 2010 or so, we really began to study a class of bacteria which could function in a 'subsurface lithoautotrophic microbial ecosystem'--SLIME. They blew the biologists of the time flat on their collective asses. Why? We know bacteria are typically a thrifty lot. We know they tend to diminish their rate of metabolism and their actual size based on the availability of nutrient supplies. But how do you manage to make it when there are no--I mean zip, zero, none--available nutrients?

"I'll tell you how: you either get very clever, very industrious or very extinct in

short order. Bacteria as we understand them have got to have a form of carbon to survive, something they can convert to ready energy. You see where I'm going."

Brett looked blankly at Djen.

"What this lecherous little freak is trying to explain," she said, "is that the organism as we've encountered it is not only somewhat human parasitic, it's also symbiotic with a smaller autotrophic bacterial group. Autotrophs are organisms that synthesize proteins, fats and other biological molecules rich in carbon from inorganic sources. We've discovered concentrations of the organism on the surface of cores on the order of one hundred million units per gram of rock. We've found smaller concentrations toward the end of the sample, the portion of the rock that was embedded below the surface. It's been accepted in biological circles for some time that in the normal evolution of planetary life, microbial forms ascended from deep in the crustal material toward the surface as conditions became more hospitable. Our samples would seem to confirm those findings.

"Archae Stoddard in its original state had two abundant gasses in its atmosphere, hydrogen and carbon dioxide, but it's also very cold and very prone to fluctuations that should devastate most microorganisms. Our friends here elected not to subject themselves to the vagaries of the planetary atmosphere for most of their organic nutrient requirements. Instead, they adopted the autotrophs from safe niches deep inside the pores of the igneous rock deposits. These autotrophs can readily metabolize hydrogen gas for energy. Hydrogen is produced by the chemical reaction between the iron rich silicate rock and trace water deposits available in the original biosystem, so it was readily available in the rock. The autotrophs can also synthesize the raw carbon dioxide gas molecules. From this diet, they excrete organic compounds, mostly in the form of methane."

Micah smacked his hand against the table. "Our orgazmos eat the shit of the autotrophs. Carbon rich organic material. That's how they survived in the SLIME environment."

Djen shrugged an apology at Brett.

"But here's the kicker," Micah continued. "You're going to *hate* this. I mean, hate it. I'm guessing that the relatively small population of autotrophs and the limited fund of organic nutrient they produced kept the organism community relatively

small for a long time. Millions of years. Then we showed up." He sat back, chuckling. "First thing we did was start dumping carbon based gasses into the atmosphere. Then we started warming things up. Then we started whanging oxygen atoms around to bond with the hydrogen and increase the humidity. More water, more chemical reactions with the silicate rock. The autotrophs flourished and grew, and consequently so did the other organisms.

"And as the temperatures rose, the bacteria migrated toward the surface of the rocks where they could. A nice geothermal vent is better than a fecal culture for growing bacteria. I know what you're thinking. . .there was no apparent moisture in the magma chamber. But you're totally on the wrong scale of perception, Chili. There was water there, miniscule but there. There are traces of it in the samples you brought back. And when you've been almost desiccated for millions of years, increasing the humidity by twenty some percent is like issuing orders to build a fucking ark to the microbial community. If Liston had cranked up the magnification on his images, you'd see these guys are practically strapped out in galoshes and slickers and goddamned bumbershoots."

Brett frowned. "We brought them to the surface. Is that what you're telling me?"

"We created a more hospitable ecosystem," Djen explained, "and the microbial life of the planet has responded by migrating into positions in which they can more fully synthesize the available organic nutrient reservoir. It's been gradual, of course. It's taken them five years to reach the point they have."

"That doesn't explain how they can exist in two polar extreme environments. From the vent to Ritter, that makes sense."

"Compatible thermophilic conditions," Micah said. "Right fucking on."

"What it doesn't tell me is what happened to Nine."

Djen pressed her fingers against her temples. "We have some suppositions. Nothing concrete."

"Then suppose me."

"You remember, back in the vent, we talked about what nutrient value the organism could obtain from silicon. We made an assumption that they metabolize it in some way."

"I did," Brett said. "You didn't."

"I was right."

"Now you say, 'Ouch'," Micah said, chuckling.

"Micah explained how the organism has survived on and in silicate based igneous rock. We know the organism feeds on organic nutrients. That's what they're doing to those of us who are sick. We've resolved what we thought was a conflict. They don't metabolize the silicon, but they do use it."

Brett leaned forward. "How?"

"Bacteria lead a liminal existence. They're killed off by temperature variants, resource shortages, minor fluctuations. Exceptions are classed as extremophiles which are hardier and can endure harsher climates. Rare among those are a select group of polyextremophiles. The first discovered was *Deinococcus radiodurans*. It was the first bacterium which demonstrated a surprising resiliency to more than one climatic variable. Extreme oxidization, desiccation, even exposure to significant radiation did not kill it. The reason turned out to be the ingenious evolution of an internal repair system. *D. radiodurans* contained multiple strands of duplicate DNA material which featured adaptive, alternate copies of genome sequences. If one strand was damaged by, say, high radiation, the bacterium failsafed its DNA replication to a different template with a genome sequence more apt to resist radiation contamination.

"Our organism is an adaptive polyextremophile as well. It has the capacity to select replication templates ranging from the sub-psychrophillic to the thermophillic. But even that fact doesn't explain how they can endure the open atmosphere and remain operable enough to disable a Sperling Engine."

"And that's when we began thinking about silicon, per your conversation with Djen," Micah said. "One of the celebrated discoveries in biosemiconduction, in fact the primary discovery which led to the implementation of the bacterial-semiconductor crystal transistor, was the existence of a mischievous little bugger who insisted on inhabiting the surface of the old silicon wafer chips. They tried to kill them with UV, toxic oxidants, you name it. Nothing worked worth a damn. See, the problem was related to the dopant materials. Some of them, like germanium oxide, were water soluble, whereas the silicon was only soluble in hydrofluoric acid. Each time they'd set about to clean the chips with highly

purified *agua*, the germanium oxide or its cognate dopant would crystallize around the infested bacteria. The little bastards lived it up inside their clamshell castles. Ta-da, the birth of biocrystal transistors. Also a big revelatory tha-wack for the biological community.

"Djen and I noticed under intensive microscopy that the ends of the reticulated fibers which surround the organism were tipped with a semi-solid silicate coating. Not odd, we assumed at first, given the fact that they rumble around on silicate rock. But this was fused silicate material. Freaking ceramic tap shoes. Confused the fuck out of us until we found this."

Micah sprang out of his seat and dealt a hand of screen print images around the table. He winked at Liston this time. "You're not the only one who can add some multimedia spice, doc."

Brett flattened the curling edges of the papers with his palm. "Get on with it, Micah."

The biologist held up his copy. "Meet *Bacterium persiarum*, also known as BP, also known as *Bacterium motherfuckacoccus*. Quasi-ovoid on the outside, soft and squishy genetic goo on the inside. As I was saying, if you look closely at the propulsory fibers ringed along the outside, you can see the faint ridges of metallic glint. Looks like he's wearing a set of thimbles on his feet."

"What's the significance?" Brett prodded.

"Flip to the next photo."

The image appeared to be a bead of smoked amber glass, still golden and glinting from the burst of the electron gun.

"I'm looking at it."

Brett found himself the beneficiary of a wink. "Same resolution as the one you just saw. Different bug. The organism has the capability of hermetically sealing itself within a defensive silicate crystal."

"You just lost me," Brett said.

Djen took up the challenge hesitantly. "We haven't actually seen the process, but

we can hypothesize it. Silicon is only soluble in certain forms of acid. The organism must have the capability of secreting trace amounts of an acidic agent which separates the bonds between the oxygen and silicon atoms in the surrounding silicate rock. The liberated silicon atoms are clustered, then re-form into an encasing crystalline structure. When the organism no longer needs protection from the elements, from threats, from whatever, it secretes the acid again and dissolves the crystal."

"It's brilliant," Micah assured them. "Absolutely stunning."

"If it's true," Djen said.

"Evolutionary brilliance or not," Brett said, "how long could they live like that?"

"We don't know."

"Guess."

Djen chewed her lip. "I suppose long enough to get inside Nine. Inside the Engine, there's a relatively hospitable climate. With enough nutrient resources, one organism could have holed up and begun to replicate."

He nodded in acquiescence, but continued to watch her. "That tells me how. Now tell me why."

"It was accidental. The organism was sucked into the system and found a place to thrive."

"Then why attack the screens?"

"A search for nutrients."

"Except that we've established that silicon would have been the only nutrient on the micromesh, and the organism doesn't metabolize silicon."

"It was dissolving the silicon to form another protective crystal. The Engine proved inhospitable, so it was moving on."

"Then it wouldn't have had time or resources to reproduce on a level consistent with the damage to the screens. That would have taken millions of the

organisms."

"Perhaps the community outgrew its ecosystem."

Brett hardened his tone. "This all implies cognition. Analysis. Sentience."

Djen nodded, though her eyes shifted away from his. "The condition of the screens imply the same thing. There's no other explanation for the incident other than a concerted and hostile effort."

"I won't accept that. There has to be another answer."

Brett straightened and shot the pictures back across the table to Micah.

Ilam cleared his throat. "Semiconductive capability."

Silence followed. No one knew what to make of Ilam's suggestion.

"Explain that," Brett demanded.

"It's the element all the reports have in common. The organism has infected the electrochemical synaptic contacts inside the brains of its victims. The screen cables were split at the location of the primary electron node. This organism migrates to the zone of strongest electrical impulse. The most active neurons, the top of the micromesh strands, where the current begins its trickle down the screen."

Ilam swiveled to face Djen. "The organism doesn't dissolve the silicates with a biological acid, it severs the covalent bonds between the silicon and oxygen atoms by the excretion of a small electrical charge, thereby depolarizing the molecular unit so that the oxygen and silicon atoms repel one another--or more likely, it adjusts a whole series of potential silicon and oxygen and other available atoms to form unique crystal structures of varying strength. The task would seem to be in the careful manufacture and dexterous attachment of atom to atom. It also requires a considerable storage capacity--a microbial battery.

"Liston told us the organism follows the same procedure with neural connections. It creates or strengthens synaptic bonds by discharging electrical current into the dendrites. At the other end of the neuron, another set accepts the stream of ions generated by the action potential. The suggestion which arises

from the similarity of these procedures should be obvious."

Djen's face glowed with sudden comprehension, a blossoming excitement. "The organic chemistry of the brain is a replacement nutrient source for what was supplied by the autotrophic symbiotes. But it isn't just the carbon detritus they want, it's the energy produced in the electrochemical reaction."

Ilam nodded. "The current produced by the screens is also electrochemical in nature. The nanomech units accept their instructions in the form of sodium/potassium ion binary switches. The mech power supply is a sodium/potassium ion battery which is recharged regularly at the nodes by the addition of fresh sodium and potassium ion packets. The entire Engine nanotechnology component is based on the neuro-biological model. That which the organism found hospitable about the human brain would have been immensely more attractive given the capacities of the Sperling Engine. Except, of course, for the fact that the Engine is not nearly as adaptive and resilient as the brain."

"All right," Brett said. He held up his hand to quiet them. "Bottom line it for me."

"It's your baby, Ilam," Djen said.

"The organism utilizes electrochemical energy in the form of ionic transfer between its receptors and those of the host or autotrophic support mechanism. This is partly evident from its bioluminescence. That the silicon or silicate crystal is a defensive device from the elements or some other threat may be a correct hypothesis, and quite to the point. The energy required to generate and separate molecular bonds would be relatively enormous. The organism must have a source of energy and nutrient capable of sustaining such a demanding task, because its survival in the interim is threatened. It does not believe that the autotrophs currently in use have that ability.

"The organism desires to migrate to the surface as the hospitality variables increase. In order to maximize the potential for migration, it requires access to a more diverse and more potent source of readily available energy. Even the relatively dim seventy millivolt current of the human neuron must seem like a bonanza. Thus, it requires us. We are a ripe and easy source of both organic and electrochemical resources."

Ilam rubbed his forehead, then said, "It's logical, it's feasible, it's even natural, but there's one major strike against it."

Brett tensed. "And that is?"

"It doesn't explain how in such a minimal time frame a billion year old organism could have evolved the instincts and capability to infect us and the Sperling Engine. We've been parasitically harvested. Maybe over a period of two weeks, maybe over five years. These bacterium could be thousands of years old. Not the group, Chili, but the individual examples. Bacteria have been shown to live for immense stretches of time. How do we, a blip on their collective radar, come to figure so prominently in the food chain?"

Brett sensed what he was trying to say and backed away from it. "Don't go there, Ilam."

"It's a question you and I and everyone else is going to have to confront." Ilam became stern. "You've been dodging it for days. Your glib little 'fuck them' speech yesterday doesn't begin to cover the necessary material. If it's mere biological life, fine. But it might not be. It might be sentient life. Sentient on an order that is dramatically, almost infinitely inferior to ours, but sentient nonetheless."

Djen made a noise in her throat, a sound like a growl. "It's easy for you to urge caution when you're the only one of us currently beyond the risk of infection."

"I don't intend to throw stones. I just want the commander to be clear in his mind before settling upon a course of action."

"We have a course of action," Brett said. "And I don't give a goddamn about microbial sentience. Teach them to write poetry and I'll still say *fuck them*. We have one goal here, and that's sufficient analysis of this organism to determine the feasibility and safest course of a nanomechanical medical intervention."

Brett rose from his chair and planted his knuckles on the table. He leaned toward them, scowling.

"I'd like another day," Liston said. "And I'd like to see Ilam's detailed protocol for programming and insertion. But the truth is, of course, that insertion of nanomechs is inevitable. The antibiotics don't cross the blood-brain barrier. And

they apparently don't work on the organism before it accesses the brain, anyway."

Djen nodded her agreement. "At some point we're going to have to develop an intensive crew diagnostic to see who needs treatment."

"Everybody gets treatment, sick or not," Brett said.

"It's unethical," Liston responded.

"It's preventative, and that's final." No one challenged him, and Brett allowed himself to relent. "I am, work with the good doctor tomorrow. Give him everything he needs to develop a treatment regimen."

"Right. I'll be in the medical bay by six."

Brett continued, "I want the rest of you there as well. The collective expertise of the station on this issue is in this room. We're all tired. We're running ourselves into the ground because there are a decreasing number of qualified technicians available. I can't afford for any one of us to pull an unscheduled psychotic episode, not with the brunt of the work still to be done. We all get MEG'd and we all run those readings through Cassandra first thing."

Djen watched him with frightened, dark eyes. "And if she tags us as infected?"

"Then you or anyone else will be confined to quarters so that a lapse in cognitive ability doesn't skew the data that might be gathered." Brett spoke with a blunt savagery that rose up from the pit of his stomach. He couldn't help himself. "And you'd have effectively volunteered to test the nanomech insertion protocol as soon as it's available."

18.

He wasn't sleeping. The smothering cloth of fatigue notwithstanding. The aching-backed, stumble-footed exhaustion notwithstanding. Fuck, even the mellow warmth of Djen's slender arms and scented embrace notwithstanding.

Brett lay in his bed in the dark and stretched out his vision toward the ceiling he could not see. He listened to the hum of the circulation fans. Eventually, he amused himself by teasing erect the nipple she kept pressing into his ribcage.

When she clambered bleary and short from the well of sleep long enough to swat at him until he quit, he knew he had to do something else. The sandman wasn't coming around to his bedroom window tonight.

The problem was that there are only so many things a man can do in the middle of a night in a practically deserted deep space station. Most of them involved work, and Brett had done enough of that for one day. He had the equal promise of too many more hours piled up and waiting for him come sunrise. He was supposed to be sleeping. He craved sleeping the way he had craved the inside of Allison Butcher's pants back in high school. The idea of it felt to him as satisfying as the way cotton candy tastes.

Sleep was also his only viable excuse for not working, for not striving to fend off a crisis he was the least equipped to comprehend. Brett wanted that to mean that if he didn't sleep, the time was still his. He was still allotted the right to do something with it other than moon over little green invaders from space.

It occurred to him that the truth was the opposite--giant pale nutrient fleshbag invaders from space--but he didn't find that particularly amusing.

He grumbled out of bed at last. It was an epic struggle of grasps and whimpers and octopus limbs, but somehow he managed not to wake her. He dressed in the dark and let himself out the door as silently as possible. Brett checked the glowing dial of his watch. It was just after one. He thought about Liston, who was under strict orders to be sleeping for the next fifty two minutes. Had the doctor bothered to obey? Brett didn't particularly care.

I'm too goddamned tired to care. Goddamned fucking tired. He heard his mother, saw a scratchy film of her in which she wore her blue muslin Sunday dress, the one his father had buried her in. She stood in front of the clapboard country church, at the foot of the lime green concrete stairs, two steps removed from the tire rut drive and the rows of neatly spaced marble headstones that swept up most of the church lawn. She was shaking her head. *None of that rock star language in my house, young man. I won't have it.*

Except it had been a time of rock stars and hard rock language. In the late forties, teen years, he'd tripped toward young adulthood on the anthem, *Say your fuckin'*, just like everyone else he knew. He could still, if he wanted, recall in audio-eidetic memory D-Jack Harm's smoke and gravel bellow and the heavy bass line

intro riff. Dum-dum-dum-wheew-da-da. Dum-dum-dum-da-da-dum. That song had defined an entire period for the young people of his generation; he had lost his annoyingly persistent virginity with it blaring on his car stereo. He had to admit he couldn't remember most of the words and none of the apparent meaning now. Hadn't, in fact, for nearly ten years. Something about parental-cultural oppression.

Brett started to walk, padding his bare feet against the cold concrete floor. His knees began to ache from the chill. The feet themselves didn't. They went numb long before they hurt. Somewhere between saying his fuckin' and making the turn, he had decided what needed to be done. It might not get him to sleep. It definitely wouldn't do much to extricate Persia from peril. But it was work, if only technically, and that was better than nothing.

He would try the radio again. Not Mission Comm HQ, but the emergency beacon, the life line that connected Persia to Malibu, maybe Markus Brett to Jack Overton. It wasn't any more reliable than the portable comm unit sitting on the desk in his office, but he hadn't tried it yet. It was a thing he could do that hadn't been attempted.

Not that there was anything Jack would be able to do if they did make contact. He wasn't any more of a sci-tech than Brett was. Malibu was so far beyond a reasonable range of assistance it was ludicrous. But if they connected, they could commiserate. And at the very least, if things went badly in the future, someone would know what had happened at Persia during the radio silence.

He entered the Command and Communications module from the third level. In the beginning, they had experimented with calling it CommComm, but that didn't manage to stick. Someone had spread the term C-Two around for a pair of months, but folks had finally settled on simply calling it the Hole.

The Hole was a cylindrical room lodged in the center of Persia Station. It spanned the heart of levels three and four like the pit of a firm peach. Outside its walls ran a narrow hallway which separated the communications gear from the personal quarters of the communications technicians who both fed and digested the constant stream of audio, visual and electronic mission data which sputtered through the satellite net.

Brett stopped inside the double sliding doors and paused at the top of the stair which extended down to the main floor. The catwalk was a naked steel platform, three meters in width which encircled the upper half of the cylinder. Against the curve of the walls grew banks of comm processors, local storage drives and blocks of cream colored panels alight with sensors and idiot flashers and scrolling LCD display screens. Below the catwalk, down on the floor, evenly spaced workstations webbed out from a circular main console studded with terminals, video displays and tangled clusters of headsets. There was a constant clatter of machine processors, clicking drives and the occasional attention buzzer.

Despite its name, the Hole was a bright and thoroughly modern place done in shades of white and chrome and electronic chiaroscuro.

Brett took the stairs quickly, pounding his boots on the steps to announce his arrival. The young woman sitting in the left arm of the main console's embrace glanced up, frowning. But she recognized him at once and the severity on her face softened. She almost smiled.

"Good morning, Commander," she said.

The woman's name was Attler. Brett had last seen her in the dispensary two days previous being pawed by Micah as she received her antibiotic booster. He was surprised to see her now.

"What are you doing here?" She was a mech engineer, not communications. But

before she could answer, he went on, asking the more pressing question, the one that should have occurred to him first. "Where are the others?"

Even at this time of night, there should have been three or four duty techs manning the comm equipment.

Attler gave him a look that was nearly vacant with fatigue. There were dark and mottled circles beneath her eyes. "I'm comm second for Jeffers. He didn't report, so Cassandra notified me. I don't know about the others. No one else has been here."

Brett pushed through the low, swinging door into the main console area. He sat in the chair beside her. Four separate but empty cups of coffee sat in a row on the shelf in front of her. She saw him notice and grimaced. "It hasn't been that bad. With most of the systems down due to the electrical storm, we don't have much transmission volume. I've had to find ways to keep myself awake."

"You pulled your own duty in mech engineering today, didn't you?"

She nodded at him, but made a show of straightening her shoulders.

"Were you the only one there, also?"

"No. One of the others showed up. She didn't do anything but cry most of the day, but at least I wasn't alone."

He had been so busy the last few days shuttling back and forth between labs and the medical bay, Ashburn and Cassandra. Brett suddenly realized he didn't have a clear sense of the rest of Persia's reaction. Ashburn had tried to tell him, of course, but Ashburn was sec-o and prone to imagining crisis. Djen and Ilam and Liston were as immersed in the work as he was. None of them had bothered to notice what was going on around them. They didn't have time.

Brett studied Attler's face now. He could see her fear like a bruise just below the surface of her skin. If she didn't keep her hands firm and flat against the desktop, they had a tendency to tremble. She radiated a raw sense of horror that was palpable. It hummed in the air between them when she spoke, another form of infection that wanted to leap from host to host.

"How bad is it?" Brett said, hoping to learn from her, but hoping to soothe as

well. Despite her fear, Attler was doing her duty. She'd come to work as ordered, and that suggested to him a quality of strength, even if her hold on it was nearing its tattered edges. "I need to know. Is it getting worse? What are people feeling?"

"Since the others. . .not the first, but the second group--the ones who came after the injections--since they went down sick, people are scared. Some won't come out of their rooms except to run to the commissary, and then they stockpile whatever they can." Attler looked at him with large eyes. "Nobody wants to be around anyone else. We don't want to risk that they might be sick and just not showing symptoms yet. We know it isn't meningitis anymore."

She said the last bit with a faint tone of bitterness. Not exactly an accusation, Brett thought, but something close to it.

"What do you think is wrong, then?" Brett asked. "What have you heard?"

"Rumors about a bug. A hostile microbe. I heard it came from the bio lab, that it escaped containment after they had done some adaptive genetic splicing on the cyanobacteria. I don't believe that," she added quickly. "But some people do, I think."

"You're right," he assured her. "It didn't come from us. It came from outside, from the planet itself."

He didn't know what else to say. There weren't any convenient lies that would allay her fears, but he certainly didn't want to encourage the belief that someone in the bio labs had made an error as egregious as allowing an experimental bacterium to escape into the biosystem. In the current climate, that would quickly degrade into violence.

Attler shrugged at his revelation as though it was pointless. "Are you working on a solution?"

"We are."

"Will it save us?"

Brett tried to smile, but failed. "That's the plan."

"So, you know what I'm doing here. What are you doing here at this hour,

Commander?" The break in topics was so sharp, Brett didn't know what to say at first, but he understood. He had just asked her to trust him, to trust all of them working on the problem. Attler couldn't afford to believe anything except what he was saying. She needed to trust that he would live up to his promises, that he would do his duty and preserve Persia Station and its personnel. To doubt him would be the same as surrendering her last hope.

So she changed topics. She chose not to know any more than her trust in him allowed.

"I came to use the emergency channel," he said. "I try it once or twice a day, just in case."

"We've got the ready link on an automatic loop, but we're not getting through."

Brett hadn't known that. "Was that Ashburn's idea?"

"I couldn't tell you." She hesitated, seemed to chew over an unsavory thought. Finally, she said, "Malibu is too far off to lend us any real help, aren't they?"

"Physical help, yes. But their station comm was an old salt when the Mars mission was young. He's been around the star charts a few times and might have some ideas that would be as good as fresh bodies." Brett smiled in a way he hoped was confident and he patted her arm. "As a matter of fact, I'm going to be at it for at least a couple of hours. Why don't you grab something to eat or some more coffee. Even a nap, if you want. I'll hang around until you get back or the next shift logs in, whichever."

"Can you handle the boards?"

He drew back in mock outrage. "Do you see the title on my name badge, darling? I could take this station apart a bolt at a time and put it back together blindfolded. Of course I can run the boards."

"Is that true?"

"So says my job description. Go on, get out of here."

She smiled in gratitude and rose from her chair. "Just a small nap. Page me in my quarters if you need me."

"Go."

Without another word, she went.

Brett spun his chair across the open floor and skidded to a stop in front of the primary comm console. He clipped on one of the earpiece/transmitter devices and punched up his login on the keyboard. Cassandra gave him the standard difficulty accessing the emergency band, but backed off once he'd typed in the proper passcodes. Processor lights fluttered as he aligned the communications array, and the screen in front of him counted down the seconds to a coordinate fix on Malibu. A message appeared informing him he was able to transmit.

"Persia Station calling Malibu. This is Station Commander Markus Brett transmitting a maximum priority emergency request message for Commander Jack Overton. Are you receiving, Malibu Station?"

He repeated his message and versions of it dozens of times over the next five minutes. Brett shouted into the microphone. He cajoled the airwaves. Eventually, he cursed roughly every third word while he punched buttons and twisted tuning knobs. His efforts accomplished nothing. Static growled back at him, interspersed with the occasional high and melancholy whine. In desperation, he fired off a command to Cassandra demanding a boost in the communications array, only to be reminded that the emergency band always accessed maximum signal boost capability. Brett cursed some more.

After ten more minutes, he imagined he heard something. A guttural and broken whisper across the ether. He tried to dial the signal in manually, felt himself lose it with his clumsy and unpracticed hands, then rolled back through the dial.

"Malibu, this is Persia, are you receiving?" He barked his frustration into the transmitter. "This is Persia Station calling Malibu Station, is there anyone on the line?"

Of course there was no one on the line, he thought. When Jack "Slow Burn" Overton said he was taking a vacation and his whole goddamned station with him, he meant it. Overton was legendary for working his crews like a brutal slavemaster for fifty weeks out of a terran year, but when he granted Leave and Liberty, he granted it totally. He demanded a great deal and he repaid his people for what they gave him. No one was even going to think about picking up the comm line--even the emergency comm line--just three days into their break. And

that was assuming there was any fucking crewman sober and conscious enough to understand Brett's bleat from their speakers in the first place.

In that moment, he almost tore the headset off his ear from sheer frustration. He almost pounded the counter and screamed at the empty room. He almost threw the whole comm apparatus across the room.

Later, he almost wished he had.

"Commander Brett?"

Brett instantly removed his hands from anything and everything he'd been touching. He hunched over the comm board, driving his anger and outrage deep below the surface, withdrawing his senses from the room, the surrounding sensors. Brett leaned into the disembodied voice with his entire being. He closed his eyes. He bent forward a bit more, resting his elbows on his knees and his forehead against the cool surface of the desk.

The signal wasn't clear. It swam in and out, pierced by spikes of distortion. But the channel was open. He wanted to shout for joy, but he didn't. Instead, he focused his senses until only the voice from out of the frigid night penetrated his consciousness.

"This is Brett," he said, keeping his voice steady. "Are you receiving?"

There was a pause due to the distance. "I can hear you. Not very well, but mostly. I don't know how to work this thing. Thank God you called. I didn't hear it at first, then couldn't find my way. I was afraid you'd stop."

Dread formed like a stone in Brett's belly. The voice he heard was young, male, next door neighbor to hysterical. And he recognized it at once, because Brett's understanding made the stumbling collision of words eloquent. It might as well have been any man or woman huddled deep in the bowels of Persia.

A small voice flared in the recesses of his brain. *Hang up, buddy. Hang it up now. Let that kid believe the connection was lost by accident. He's already said he doesn't know how to work the board. Nobody wants to hear this, most especially you.* It was more difficult than he would have liked to admit to push that advice away.

Brett spoke at once, his own words falling in spitfire succession. Just so he wouldn't be tempted.

"Who is this? I need to speak at once with your station commander. I need to talk to Jack Overton. This is an emergency band broadcast."

"I'm Michael. Michael Stepson."

Go easy, Brett advised himself. There was a quality in the boy's voice, something liquid which told him the kid could be spooked easily. Once spooked, he'd be gone. Brett started from the beginning, speaking in slow and deliberate fashion.

"Michael, this is Commander Markus Brett from Persia Station. I need to speak with your station commanding officer. I need Jack Overton. Can you get him on the line? This is an emergency situation."

"I'm sorry," the boy said. "Jack isn't here. He's gone."

"Where did he go?"

"He's dead." Michael laughed, a hollow and joyless sound. "I meant that figuratively. Jack is dead."

Brett processed the information in a wink, then shoved it away. He didn't have time for it. "Who is in command at Malibu, Michael? Let me talk to the highest ranking officer."

Another pause, but this one was not the transmission of waves over great distance. It was a brooding hesitation.

"You're talking to him, sir. Second Meteorological and Topographical Analyst Michael Stepson. That's me, and I'm the interim commanding officer of Malibu Station. I'm the only officer of Malibu Station." The voice sighed in Brett's ear, and at the end of it was a muffled catch. The boy was crying. He said, "I believe I'm the only person left, Commander Brett. They're all dead here. Sample and Millik are, I know. Jack and Priest must be as well. Priest was our sec-o, sir. He would have stopped what they were doing if he'd been alive, so he must not be."

"Michael," Brett said. "Calm down, son. Tell me what happened."

"I locked myself in the central heating crawlspace. I did that almost first thing, and that's why they didn't find me. Not that it matters, you understand, sir. The stars are coming out shortly. I can't see them from here, but they'll be out down below, and that means it's just a matter of time. I knew that when I came out for this last bit. I was hungry, so hungry, Commander Brett. I had to come out, but I knew--or maybe because I knew that there wasn't much chance anyway. I knew the stars would twinkle there as well as here."

Michael seemed to gather himself as he spoke, as though the act of speaking to someone who listened fortified him, even if that other person was just the sound of breathing on the wrong end of a thousand kilometer line.

"I need you to tell me more, son," Brett said. "From the beginning, and everything that happened, as well as you can recollect it."

"You know about the microbe," Michael said, his voice flat. "That's why you called, isn't it? Dr. Isaiah took to calling it the 'chigger' at the last. He said it made everyone feel like they had an itch they couldn't scratch.

"Have you ever seen a dog with a real bad case of fleas? They can drive even a good mutt right out of his head. I had a dog like that once, when I was a boy in Alabama. I had to put him down. Over some goddamned fleas, sir. Some goddamned fleas that made him a little wrong in the head, you understand? He got in his eyes this faraway look, like all he could think about was that nipping on his backside. He'd get this little shimmy going when he walked like he could keep them from biting on him if he bounced them around. He took at snap at one of the little girls from a neighbor farm, and my dad told me what I had to do.

"That's what happened to us, sir. Some of us got the itch and went a little mad. Mean-crazy. Dr. Isaiah said we all would get that way eventually, but some of us never got the chance."

The young man fell silent. Brett heard him snuffle into the microphone, imagined him sitting just as Brett himself was in a mirror reality, a twin Persia, a replica Hole, probably wiping his nose on his sleeve from crying. The air about both of them was pregnant with electronic hums, the walls bright and technicolor with buttons and screens. No human presence intruded on their communication. They sat in parallel universes, unconsciously mimicking one another. Except Michael's was a dead universe, and Brett's was merely getting that way. The chasm that loomed between the two, between existence and potential, was as vast and blackened as a pit woven from the fabric of nightmares.

Brett could think of nothing to say except, "Yes, we know about the organism. The chigger."

Bacterium motherfuckacoccus!

"We should have known something was wrong when Jack told us we were

taking some time off. Jack never let us take off, especially when we were consistently failing to meet our quotas. And we were having a hard time of it. We were short some crew, three or four that had gone down with what Dr. Isaiah said was some rare form of meningitis. Plus, our engines were all on the fritz, that's what I heard. We were popping screens quicker than electrical breakers in Bostlanta Sprawl." The boy laughed gently. "But when Slow Burn says to take a day or two, we don't question him. We take the time and we enjoy it, even if it will get tacked on at the end."

The boy was fragile. Brett sensed that, but there were things he had to know. Persia Station was his responsibility, and if that meant pushing Michael nearer the edge of an emotional precipice, Brett had to do that.

He said, "What did your doctor discover about the nature of the organism?"

"I don't know."

"Anything would be a help, Michael."

"Dr. Isaiah didn't last but four or five days after it began. He collapsed at his desk and nobody was able to rouse him. He didn't have much of a second, and Widmark was dead by the end of the next day. I know that doesn't help much, sir. I'm sorry."

Brett tried to hide his disappointment. "Can you access your Cassandra system? Maybe the doctor uploaded his findings before he became ill."

"Jack shut the Cassandra down," Michael said, his voice sad. "All but life support and some other basic functions. Said he was tired of getting all those warning messages that didn't mean anything. But that's just rumor, Commander Brett. I can't say for sure."

Brett let it go without asking the obvious question. Why the fuck would he do that? What man in his right mind would terminate his Cassandra system? The answers were pretty straightforward. Jack wasn't in his right mind, not at all. And Brett didn't need any analysis from a kid like Michael, who probably wouldn't have been in a position to know, to piece it together.

"That's fine," Brett said instead. "We're making some progress on our own down here. Finish what you were saying, Michael. Tell me about Malibu, about what

you remember."

"I remember thinking it took us too long to figure things out. We were too late, I mean. By the time it occurred to some of us that something was wrong, it was irreversible. Jack was maybe just the last sign. We'd been having problems, little things, with people not getting along. There were some fights and other nastiness, a couple of sexual assaults. Priest did the best he could to keep order, but everyone really just thought it was the stress, you know? We'd been whipping ourselves for a few weeks trying to get caught up, and everybody was frustrated because the engines were failing. There were lots of external missions, and you know how dangerous those can be. It put people on edge.

"Last week, one of the missions went out. I think there were five in the party, and they had some trouble. Not much going on by way of radio, mind you, but some kind of problem. Only two of the boys came back. They blamed it on the storms, but there were suspicions. Priest wanted a full investigation, and he might have had one, too, if things hadn't started getting out of hand.

"It might have been the crew outrage that started it. Those three that had died, they were likeable people. Everyone thought so, except maybe Sample and Millik--they're the two that came back. The two girls were friendly, pretty, a couple of our best. Some grumbled over meals that Sample'd had his eye on one of them, on Lara, but that she wanted nothing to do with him, and that rankled him. He and Millik found themselves shoved off into a corner. Isolated by suspicion.

"Some folks went to talk to Jack about it, and maybe Sample and Millik went as well. It was obvious he needed to do something to smooth things over before the tension became really disruptive, but Jack flat told them he didn't give much of a shit about it. Dead was dead, after all, and we had that couple of days leave coming on. You'll all get drunk together, he said, and bygones will be bygones. That doesn't sound much like Jack, does it?"

Brett shook his head. "No, it doesn't."

"We were pretty well split as a crew, I think, between those who think they'd done a crime and those who were content to call it accidental, with a few more on the criminal side. It simmered for a few days, and when the liquor was broken out, bygones didn't go by as Jack thought they would. Things got ugly. Priest

locked up the weapons because he said he didn't trust the combination of drunkenness and access to guns, but we've got other things around. Rivet guns, knives, hammers. All it took was somebody looking the wrong way at somebody else.

"I saw it start in the commissary. This was three or four days after Dr. Isaiah had found the chigger out. He'd been performing autopsies on that external mission crew; said he noted some anomalies in the brain, things he said matched up with some of the readings he was getting on the crew with meningitis. He said that some of the trouble we'd been having on the station could be connected. There was a long medical explanation I only partially understood, but enough to be scared. I was there when he told Jack--since I'm the youngest, Jack would let me hang out to watch him sometimes. He'd send me on errands for him, or try to teach me some of the things that make a station go. I thought I knew him pretty well, but I was stunned when all Jack told him was to look into it, but not to bother him with it until he had something concrete. Isaiah was in a coma by nightfall, and that was that.

"It was enough to show me that I needed to watch myself, though. Me and everyone else, so I was real nervous in the commissary that day. So much tension, it was like being duct taped to a transformer. There were maybe fifteen folks there, most of them Sample's. They were drinking and watching an old vid, and somebody said something. In less than a second, Millik had a knife and he put it right in Tabert's stomach. That was it. The groups went at it fist to fist and anything else they could find worth throwing or using as a bludgeon. Me, I just ran as soon as it started. I went looking for Priest or Jack. Somebody chased me for a while. I think it was Jeremy from chem prog, and I was scared to death. He came on, but it wasn't like just chasing, he was mad, and every once and a while he'd howl like some animal.

"I lost him by ducking into the meteorology section. Jeremy didn't have access and couldn't budge the door, though he tried. He screamed and cursed through it, and for a while I thought I heard him scratching at the seal, but I waited until he'd gone to do anything else. He'd scratched all right. He left two of his bloody fingernails in the seal, sir. He'd torn them right off in frustration.

"I knew what had to be done next. I dashed, trying to be quick and careful at the same time, for the Admin section. I found Jack in his office. He was sitting back in his big chair with his legs kicked up on the desk and an unopened bottle of

whiskey beside him. He's got this whole bank of monitors on the wall, and he had each screen tuned to a different part of the station.

"What I saw sent me almost screaming, Commander Brett. The commissary was nothing but blood. Blood and heads. Somebody had taken all those that spoke against Sample and cut their heads off. They put them on the table right next to Sample while he sat there sipping on a beer. Not all the heads, of course. There had been a couple of girls there, girls who weren't close to siding with Sample because they knew how it must have been for Lara and the others. Women have a sense, I think, about when a man's dangerous. Sample was dangerous to these girls, sir, and I bet by the time I was watching what Millik and the others were doing to them, I bet they wished their heads were ragged cut and set on that table, too. That's all I'll say.

"It wasn't just the commissary, though. It was everywhere. The whole station was fighting it out, and Jack sat there--stone sober, I could tell--and all he did was watch. I went up to him and said that there was some trouble, but obviously he could see that, and where was Priest, please, and what could be done to stop all the killing. Commander Brett, Jack turned his head just a little, not really looking at me, but not really looking at the screens, either. He sort of smiled and said, 'Michael, the boys have been working hard. Let them have their fun'. He didn't say another word. I argued with him, shouted pretty loud, but he didn't hear me, just watched. Sometimes he'd grin.

"I watched, too, and saw that Sample and Millik were getting methodical. They'd begun to sweep the station from bottom to top, looking for those who had gone against them. They killed those they found. Killed them where they stood or slept or sat. And I knew they were coming for Jack, and me if they found me. That's when I ran. I knew where they were and how to get around them from Jack's monitors, so I dodged them and scat to central heating because I knew they'd already checked that zone.

"I'm sorry to say it, Commander Brett. While Priest and a few of the remaining were hiding out, trying to save themselves the best they could, I ran away and hid in a hole. I'm not much of a man. I see that now. Maybe if I'd have helped them, it would have ended up differently."

Brett noted that the boy didn't linger over the details of his story. The things he had said, the implications of them, were horrifying. Persia had already seen that,

though just a small taste of what could be, and Brett had resisted the urge to shiver through the whole account. But for Michael, his tone was hard, his words doled out like crisp flakes of ice. He'd lived through the terror and replayed the scenes until there was some distance, though how much could only be imagined. He had watched the people with whom he had shared the last five years be brutally cut down before his eyes.

Brett sat silently as Michael finished. A hand closed on his shoulder. He had been so intent on the story whispered in his ears that he hadn't noticed he wasn't alone. He reared back against the chair, almost screamed, then froze. His heart thundered in his chest.

It was Djen. She looked down at him, her eyes filled with concern.

She mouthed the words: *I have to talk to you.*

But Brett waved her off. He calmed his rapid, panting breaths.

"Michael?"

"I'm here, Commander."

"What happened to the others? What happened to Sample and Millik?"

"Most of them were murdered. Sample had set up a kind of court in the recreation area. When I first peeked in on it, that would have been yesterday afternoon, I thought I was a little crazy myself. It was a picture like the ones that used to be in the old Bibles on Sunday, back in the Baptist church at home. A picture of hell, all blood and red torches and stench. Sample had a tall chair set up in the middle of the room. There was blood on the floor, long streaks of it where they'd gutted some of the others, stacked their insides in little mounds and then dragged the corpses into a pile. Beside it were some of the cutting torches, and some of the bodies were burned, though not very well. I think they were trying to make a big fire, but couldn't get it to catch. Maybe to hide what they'd done. Some of them. . . some of the dead ones, I mean, had sort of a chewed look about them, if you catch my meaning, sir. That may have gone a bit far even for Sample.

"Those two, though, they hadn't been murdered. Sample was slumped in his chair, leaned forward, like he was sleeping. Millik laid at his feet. I found them

all swollen up, comatose, like Dr. Isaiah They were the last of us, I think. Those two who had brought so much bad. They were the last. It didn't seem right to me."

Michael hesitated for a long moment. When he spoke, his voice was a quiet ache. "I took a rivet gun to each of them, sir. I searched until I found one, and I put a solid bolt of steel right through their foreheads. I don't think they even noticed the difference, though. They didn't move, didn't make a noise.

"Now I'm alone."

Brett could sense Djen's anxiety. Her eyes bore into him with an intensity that was scorching, but he didn't look at her. Michael filled his entire universe.

"More of your people were murdered than died of coma's, is that right?"

"Yes, sir. Though the comas came before the madness by a couple of days. Maybe we'd have all been in comas if it hadn't happened the way it did. Are your people getting in bad shape, Commander Brett?"

He couldn't lie. "We've had a couple of incidents, but mostly just illness."

"You're lucky, then. Luckier than us, I mean. Do you think it's happening everywhere? Are all the stations infested?"

"I hope not, Michael, but until now, I'd thought we were the only ones."

"I had hoped the same thing. Just us. As long as I believed that, sir, I told myself that someone would come for me."

We'll come for you, Brett thought, but the words lodged in his throat. It was impossible.

"If it's all the same, I suppose I'll just stay here," Michael continued. "If the chiggers have taken the whole project, I don't want to go where another station might just be on the verge of what I've already seen. I don't think I could live through it again, and I wouldn't want to, anyway. And if it is just Persia and Malibu, I don't want to be taking them with me. I assume I would, you know. I assume it's just a matter of time before I'm comatose or worse.

"It's the worse that I worry about, sir. Seeing those bodies and the things that were done to them. The way they were chewed. I don't want to do that, so I don't go down to those places anymore. I stay away from the bodies. If I could turn the Cassandra back on, I'd have her change the door codes just so I couldn't get in even if I wanted to. It's the wanting to that bothers me. I worry about that a whole lot, sir."

Brett didn't know what he could say. There was, in fact, nothing. Nothing he could say, no words of encouragement, would make it better. In the end, he offered the only advice that made sense to him.

"Do you know where the sec-o kept the weapons?"

"I do."

"Can you get into the locker? It won't be easy, but if you work at it--"

"We have welding torches. And Dr. Isaiah had a laser scalpel. He said that would cut through plastisheen if you handled it right."

Brett swallowed hard at a thickness in his throat. "Do you understand what I'm saying, son?"

"Yes, sir. I'd already given it some thought. It's better than the alternative."

"Don't wait too long."

"Once I feel the symptoms, it'll be too late. I understand that. I've been safe for awhile, for the couple days I was in the vent. Because of the airflow, I guess. The blowers were hot and loud, but they kept the chiggers away from me."

"I'm sorry I don't have any other comfort to offer, Michael."

The boy said, "I'm going to go now. I've got work to do."

The line went dead in Brett's ear. He slowly removed the headset, coiled its connection wire around the earpiece and set it off to the side. Brett turned his chair until he faced Djen. She stared at him, her arms folded across her chest. She'd only heard his half of the conversation, he knew, but it had been enough. Her eyes seemed to smolder with horror.

He said, "We won't be getting any help from Malibu."

From the nod she gave him, Djen understood without him needing to explain. "Liston paged you half an hour ago. He wants us both in the medical bay at once. Something's happened, and it sounds like more bad news."

"If the start is any indication, then this is going to be a day full of bad news." He remembered at that moment that he'd promised to cover for Attler. "I can't leave. I promised the comm tech I'd cover for her."

Djen frowned. "Fuck communications, Brett. There's no one out there left to talk to us."

"I hadn't thought of that," he said, and knew it was true.

Brett rose immediately and followed her up the stairs and out the door.

19.

The medical bay was in chaos.

Members of the crew lay in idle pockets on the floor, some staring around with vacant or horrified expressions, others howling. Liston rushed from bed to cot to, in some cases, pallets which had been assembled on the cold tile floor. The bay was filled to its capacity and considerably beyond. As he went, Liston would pause long enough to peel back a sleeve, select a vein and make a quick jab with an auto-injector primed with a thick amber fluid that Brett suspected was not an antibiotic.

Brett stood in the door, unnoticed, then saw Ashburn as well. The sec-o was completely occupied with a set of nylon straps and the form of a man who twisted against his grip with ferocity. He yanked hard on the free end of the strap and sprung the line taut. Brett couldn't see the crewman's face, didn't know who it was. From all about them came groans, outright screams and in more than one case, harsh and gibbering laughter. Brett felt as though he had stumbled into an asylum.

"Oh, my God," Djen said, raising her hand to her mouth.

Liston rose from the administration of a shot. He turned half around, possibly

looking for someone he might have missed, and noticed them. He waved them toward him.

"What happened?" Brett demanded.

"Early this morning, Ashburn received a security report from Cassandra detailing the absences from yesterday's duty roster. He said it made him nervous to see so many names, so he decided to make a quick check. This is the result of his follow up. Twelve of the absences were locked inside their rooms. Four were comatose when he found them; five of the others are in various stages of delusion." Liston flicked his eyes away, spun his gaze about the room. "Three are dead. Samuels or someone else decided to remove his left eye with a dinner fork. He bled to death shortly after. Roman and Telyssa somehow breached the second level hatch early this morning and made for the surface. They did not take e-suits, and their bodies have yet to be recovered."

Djen grimaced at the news.

Brett did his own grim survey of the room, studied faces he knew. Jaekel, Simms, Merriman. He saw Rician, who had been in the mech prog lab just yesterday morning. And beside Ashburn, who had finally gotten the straps secured, Micah.

Liston nodded gravely at Brett. "Micah was the last to arrive. I sent Ashburn to get him as the patients began to arrive. I knew I'd need his help."

"Where are the others? The ones who were here yesterday?"

"Dead. All except Ritter. I found them after returning from our meeting last night." Liston frowned apologetically, as though he was somehow to blame. "I've made some discoveries you should know about."

Brett shook his head. "Not here."

"What can we do to help?" Djen asked.

Liston shrugged. "Nothing of consequence. I've just finished administering some heavy sedatives to the patients. They'll calm down shortly."

It was already happening. The screamers had slipped into asthmatic sounding

wails. The laughter was just a susurrus of breath. Micah arched his back a final time, stretching against the cord across his chest, then fell back. The expression of frenzy softened, and he lay still. Ashburn watched him go, then stepped back. He ran a hand across his forehead to catch the sweat before it ran into his eyes.

"I've got Vernon and Ilam banging on the last half-dozen or so doors that I didn't get to," Ashburn said. "Those folks didn't show up on the absence list, so they should be functional, but I didn't want to take the chance that we'd miss somebody that needed help."

"Twelve today," Djen said, her voice quiet. "Plus ten from yesterday and the day before. Christ, Markus, that's most of the crew!"

But Brett ignored her. He spoke to Liston, "You asked for another day. What do you think now?"

"I can do without. We don't really have a choice, not with the speed at which they're moving."

"Have you done a thorough analysis of Ilam's fluids?"

"As much as I can without peeking at the brain itself. It still looks clean, but I haven't had any time to review his protocol. We'll be injecting blindly. There's still a considerable risk."

"I'll accept it. It's worse than we suspected," Brett said. "I just got off the comm with Malibu. The whole station is gone. Total infestation. Everyone is dead."

He hoped Liston would not ask him to elaborate, and he was thankful when the doctor only lifted his head in acknowledgement. "Do we involve the rest of the crew in this decision?"

"No. The four of us who know, Ashburn and Vernon because they suspect. Everyone else will go along because they're too scared to do anything else. I don't want to have to debate the science or the legality any more than we have already, and especially with people bound to be more than a little hysterical."

"Understood. Come into the office." Liston started toward the door in the back corner of the room, weaving around cots and pallets as he went. "We can page Ilam and Vernon from my terminal."

Brett passed him and took the seat behind the desk. Liston and Djen occupied the chairs opposite him, while Ashburn set his back against the wall to the right. Brett punched his login and passcode on the keyboard.

"Is this terminal set up for oral command? I'd like to get Cassandra in on this."

Liston said it was and Brett entered a new series of commands enabling the room's audio sensors.

"Cassandra, are you receiving?"

"I am now monitoring this channel, Markus."

"I need you to locate crewmembers Ilam and Vernon. Have them report to this location at once."

"Your request has been processed." Brett waited for a few moments, and then she said, "Ilam and Vernon have been located on the fifth sublevel. Crewman Ilam has acknowledged the summons and reports they will arrive shortly."

"Have you had an opportunity to review the latest data regarding the unauthorized personnel?"

"Yes. The findings of Specialists Riley and Fortens are interesting. I have correlated that data with information provided by Dr. Liston."

Brett nodded. "Good. Are you aware of this morning's events?"

"I have recently updated the behavioral profile program per your specifications. Would you like to hear the results?"

"I think I already know what you're going to say. File your reports for now."

Cassandra paused. "As you wish, Markus."

The door sprang open and Ilam stumbled in, followed closely by Vernon. Their faces were both flushed and their breathing rapid, as though they'd been running.

"You rang?" Vernon said.

"We thought it might be an emergency," Ilam explained.

"Of course, we thought the sec-o's mission was an emergency, too. All we got out of that was a candid booty shot of Attler in her underwear." Vernon grinned at Ashburn, then added, "And for that, I'm eternally grateful. Don't get me wrong."

"The others seemed hale enough," Ilam said. "Frightened, but sound. Though there weren't as many of them as I had expected. I didn't think well enough about the math, I suppose."

Brett pointed them to positions against the wall. "Let's talk about the math, then. We've got nineteen confirmed casualties among the crew in less than four days. The rest of us are probably infected, though not yet showing symptoms. In the last hour, I made radio contact with Malibu. Their entire crew is a loss, probably over a period of no more than five days. Does anyone need for me to impress upon them further the gravity of our situation?"

No one spoke. Brett took a few minutes to brief Ashburn and Vernon on the extent of their knowledge. Ashburn watched him, his face set in stoic lines. Vernon, for possibly the first time in Brett's experience, had neither a glib nor lecherous comment to contribute.

Brett concluded by saying, "We have a course of action open to us. The downside is that this solution has not been tested. Don't misunderstand me. I don't mean *not adequately tested*. I mean not at all, not in this situation. Not after the infestation has already occurred."

Ashburn frowned. "But it's still better than the certain outcome."

"We don't know that it will work," Liston cautioned him. "It could very well fail. It could do more than fail and kill us in the process."

One by one, they all turned their eyes to Brett, waiting for him to speak.

"I intend to take this course," he said. "I don't see any way around it. We won't go in completely blind, though. We know that we don't have the medical capacity to revive those who have already fallen sick. We'll use them to test the hypothesis in general and the programming specifically. Does anyone have a problem with that?"

Not even Liston protested, but Brett bored into them with all the intensity of

perception he could muster. If there was any weakness in their resolve, any miniscule taint that would cause any one of them to falter, it would come now. What he was suggesting--experimentation on helpless, human subjects--would have him imprisoned and executed for human rights crimes in every system between here and Earth. By going along with it, they all became culpable. The violations of the Turning Convention were ethical bumps in comparison to the mountain he was asking them to climb.

But Malibu was dead. Nineteen of their own were gone. For all they knew, the survivors of Persia were the last living humans on the planet. That changed everything.

"Cassandra?"

"I'm following, Markus."

"What do you have to say about this?"

"It is against Earth Forces Terraform Command regulations to willingly harm or kill station personnel. It is also a violation of regulations to perform unauthorized nanomech augmentation which violates the letter of the Turning Convention."

"Unless the nanomech therapy is a medical procedure," Brett prompted.

"Dr. Liston must certify that the medical procedure is warranted to preserve the health, safety or mental stability of the patients in question."

Brett arched an eyebrow at Liston. The doctor cleared his throat. "It's necessary, Cassandra, but highly experimental."

"Thank you, Dr. Liston. Your prognosis has been logged."

Brett continued, "Cassandra, how many authorized personnel are currently in the station?"

"Ten active personnel are present, Markus."

"And unauthorized personnel?"

She hesitated, calculated. Finally, she said, "Would you like an exact count?"

"Ballpark it."

"Very many."

It wasn't the point he was trying to establish. He needed her to see what he was showing her, needed her to store the information he offered with the precise slant he gave it.

Brett tried again. "Cassandra, reference the file of Biological Specialist Micah Fortens."

"Referenced."

"Please locate his current position."

"Biological Specialist Fortens is not present in Persia Station."

"Please list the authorization status of all individuals and entities in the medical bay. Don't include this office in the definition of medical bay."

The speakers chirped as Cassandra slogged through sensor data. "Markus, the medical bay contains only unauthorized personnel. Please inform Security Officer Ashburn of possible security breach."

Brett cast his eyes around the office. He made certain that the significance of what had just been said did not escape them. It was a modicum of legal coverage. In the event that other stations remained, that Earth Forces Terraform Command still had an authority structure in place on Archae Stoddard, Cassandra would not report what they were preparing to do. Neither the nanomechanical insertion or the test runs on other crewmembers would register as violations of EFTC regulations as she understood them.

No truth would emanate from Persia except that which they chose to transmit. Reality would be what they defined it to be, and nothing else.

He spoke to Cassandra. "Have you completed the routine to cross-reference the latest imaging files for all Persia Station crew with the most current verified microencephalograph scans?"

Cassandra answered in the affirmative.

Brett turned to Liston. "Doctor, I'm assuming that we haven't made any progress on the MEG mapping for the healthy crew we discussed last night?"

"No."

"Scrap it, then. As of now, we assume everybody is infected. I don't want to miss a pocket of these bastards because of a questionable MEG reading, and I sure as hell don't want to program the nanomechs based on readings that might already be skewed by infestation. All it would take is missing just one and we'd be back at square one, or worse--they could go dormant, and sit in there waiting for us to return to Earth where people wouldn't know how to defend themselves.

"You see my point," Brett concluded. "We'll use what Cassandra's got in storage from the first of the month. Better all the way around."

Djen objected, "Then we risk losing the synaptic connections made since our last imagings. That's almost two weeks, Markus."

"Long enough," Ashburn said, "that everything we know right now about the bacterial threat could be erased. You realize that, right? We could wake up from this procedure--assuming we wake up, that is--to find the crew dead, Malibu gone and no fucking idea what happened."

Djen caught his attention, drew it to her. "We could lose the memories of *everything* that's happened. Everything could vanish, as though it never happened. Are you willing to make that sacrifice?"

He understood what she meant. He would forget the pleasure of her touch. He would lose the firm and willing warmth of her embrace, the smell of her on his skin. He would forget everything she had become to him. But would it, he thought, be too great a sacrifice to make if he didn't ever remember making it in the first place? Over a loss they didn't know they had suffered?

The answer was obvious. It also couldn't be helped. Brett tried to reassure her with a half-smile, but he had nothing else to offer her.

"You will lose it," Ilam said seriously. He pulled away from the wall. "I did, but of course I had the luxury of planning my insertions. I lost days in some cases,

hours in others. It can't be helped. But you won't be allowed to forget the threat. I'll remember for all of you. I won't need the procedure because I'm already clean. And I should stay that way, luck holding, as long as my mechs continue to operate. Cassandra can corroborate me enough that when you awake to find a grinning idiot standing above a mound of dead and dying Persians, I won't get locked away as some sort of war criminal."

"Good," Brett said. He tried not to look at Djen. Ilam's pronouncement had the edge of finality. It was beyond doubt in a way that he couldn't allow himself to contemplate, not yet. Not when there were things that had to be done to save them all.

"What else?" he asked. "Other contingencies or problems we've missed?"

"I have something," Liston said. "I mentioned I had made a further discovery."

"Instead of sleeping, as ordered," Brett said, scowling.

Liston only shrugged. "I told you last night that I had begun to review the data on the behavioral models passed along by Cassandra yesterday. There were several hundred pages of documentation. She is, to say the least, a thorough processing and analytic tool. Because of the time constraints of dealing with the patients themselves and attempting to finalize my findings for the presentation, I skipped over many of the details in her report.

"Before Ashburn directed the invasion of the medical bay this morning, it occurred to me that I would be remiss if I continued to neglect her carefully gathered materials. I think I have stumbled across some preliminary findings which will be of interest to all of us. I believe I've identified an explanation for the bizarre behaviors and aberrant psychological traits some of the subjects have demonstrated."

Liston leaned back in his chair, assuming a relaxed pose. Brett noted that the doctor appeared more awake and alert now than he had hours before, though he hadn't slept. Liston's eyes were bright, his gestures animated. It occurred to Brett that he was trained for this type of exercise, had been hardened to long periods without sleep through the boot camp atmosphere of medical internship. He was at his best in the midst of a crisis.

Either that or he had determined to jack up on stim for the duration.

"I focused specifically on those cases in which the patient exhibited significant behavioral deviance prior to collapse. Fortunately, I had Crewmen Ekers and Rian--Cassandra's specific examples from her report--available for a complete and detailed study. I also had the benefit of my analysis of Sievers's infection and decline for comparison."

Someone in the room uttered a low and threatening growl, but Brett could not tell who it was. Liston pursed his lips in consternation.

"I'm finished begging for forgiveness. I grieve the same as the rest over the loss of our companions and colleagues, but my duty is clear. I will be grateful for the opportunities that are presented if they save the lives of the remainder."

"We understand," Djen said, glancing around her for support. "But it isn't easy for us."

"Go on," Brett said. The topic was closed.

"Prior to the manifestation of any obvious symptoms, both Rian and Ekers suffered noticeable psychotic episodes. This is a curious phenomenon. I judge that they had no symptoms because the crew was well educated by the commander's instructions regarding spinal meningitis, and we saw from the rapid response to the antibiotic administration that they were down to the individual hyperaware of their own physical conditions. I'm convinced that both of these cases would have immediately given themselves over to medical treatment if they suspected anything was amiss.

"It is only reasonable to draw one of two conclusions as a consequence. Either the patients who have demonstrated psychotic episodes did not exhibit any of the recognized symptoms prior to those episodes, or the onset of the episodes prevented them from recognizing that they were displaying symptoms.

"You will remember that it was my conclusion from Sievers's case that the organism tends to migrate toward regions of the brain in which healthy neural networks already exist, and that the vast majority of the communities were entrenched in the right hemisphere. Upon review of Ekers and Rian's brain matter, what I discovered were--comparative to comatose examples--massive neural networks. They each had at least one instance of a significant complex of extremely active related neurons, and it was within this network that the majority of the organisms resided. Do you understand the difference?"

Ilam answered first. "One mode of infestation is a gradual saturation of active neural systems. The gradual approach results in coma. In the other, there is a localized electrochemical reaction significant enough to throw them off their beam, so to speak."

"That's assuming they prefer to have the victims comatose," Djen said.

"Which may not be the case," Liston finished. "If we are correct in our belief that the organism draws both energy and sustenance from the sodium/potassium ion transfer of an action potential, the community stands to benefit more by allowing the host to continue to mentally function on its own. The cognitive activity of the waking brain would generate a more than adequate supply of free energy, as it were. The organism may prod the host in a given direction, encourage action potentials along the route that will increase electrochemical reaction through the occupied neural network, but it only makes sense that it would be counterproductive to willingly decrease the supply of free energy. Otherwise, of course, the organism is required to expend the energy of its own members to achieve the same end. And I cannot believe that the unassisted action of the organism is as potent as the action of the host."

Brett thought hard for several seconds. "You think the comas are accidents? Accidents or failures?"

"I believe the choice of coma or apparent psychosis has more to do with the individualized topography of the brain. The organism, shall we say, *reacts* to the environment which is presented. Understanding, of course, that the coma stage is inevitable after a certain threshold of infestation."

Ashburn cleared his throat. He looked distinctly uncomfortable with the conversation. "So what exactly does all of that mean?"

Ilam spoke, his voice low and serious. "Primarily, it means that those who have these enlarged neural networks will continue to function for a definite period after they've been infected. Those with more generalized networks succumb rather quickly. If anyone still doubts they might be infected, here is the final, damning proof."

Vernon cast a sharp glance from Ilam to Liston. "Is that true?"

"Almost certainly," Liston said. "But I must admit I hadn't placed that much

significance on my conclusions. I've suspected for some time that we were all infected."

Brett knew he had to move them along, before the shock paralyzed them. "Then tell us what you thought was more important."

"I am intrigued by the selection of the networks. To an extent, if we're to be completely honest, we must realize that most of us are scientists. We are left-brain oriented. We're logical, rigorous, verbal in our orientation. All of the patients I've analyzed have demonstrated significant left hemispheric cortical development. But the organism largely eschews the left portion of the brain. Instead, it draws its harvest from the right hemisphere and the pre-frontal cortex specifically, which would seem counter-intuitive if we are correctly understanding what it is that the organism draws from us. After all, the electrochemical reactions are the same on either side. The raw materials are the same.

"This was the critical point, for me. And I discovered this--though we use our left hemispheres more frequently, it is the right hemispheres that relate all of our perception and cognition to the less developed, more ancient portions of our brains. The pre-frontal cortex of the right hemisphere stores our autobiographical memories, our mechanisms for accessing emotions, and current theory suggests, our concept of self-definition. It makes us who we are, while the left hemisphere allows us to coherently express those things. In the absence of expression, the right hemisphere still functions. In the absence of active cogitation, the right hemisphere continues to process independently. It is a constant and intense generator."

Liston's eyes seemed to brighten with excitement. "Through this, I came to understand the nature of the relationship between ourselves and the organism. It attacks the most potent source of electrochemical energy. That source is, in Rian, in Ekers, in Ritter, the object of our memories or our associations or our preoccupation with which we are most consumed, be it actual or total fantasy. If the synaptic connections are strong and the memories fresh or frequently engaged--if the system is healthy--the organism has the effect of magnifying that preoccupation until the whole of our reality is filtered through it. Our thoughts are consumed by that one track, then new associations are added to it until eventually, finally, what we perceive is a total and complete fantasy."

In his mind, Brett heard the voice of Michael Stepson. *He said it made everyone feel like they had an itch they couldn't scratch.* It made sense, and Dr. Isaiah from Malibu Station had unconsciously understood it all, even if he didn't manage to live long enough to prove it. The organism haunted them with itches they couldn't scratch.

Like Ritter and a last, catastrophic card game with an image of doom he simply couldn't shake, no matter how many times he imagined he was dealing the cards.

Like Rian haunted by a secret guilt for which there was no absolution, and a lost child from whom she could win no forgiveness.

"This also explains the theta wave increases we've discussed and the similarity to REM sleep in not just the psychotic cases, but the comatose cases as well. Current cognitive theory holds that the value of REM phase, peak theta wave activity, is an assimilation of memory and mental processed data into a cohesive understanding. Everything that we know and have known is correlated and catalogued and analyzed for its positioning in our perceptions of the way the universe works and the way we relate to it. The organism's stimulation of our neural network and consequent inducement of a state of constant memory retrieval leads our brain to assume that this is data to be interpreted in a theta wave environment."

Brett waited for Liston to finish, then tossed the issue back to the group. "Problems? Anyone see where he may have made errors?"

Djen wrinkled her brow. "If the hypothesis is accurate, we have to confront the issue that we've all been fiercely activating our left-hemispheric functions over the last few days. That means our reasoning could be suspect. We could be making illogical associations induced by the organism."

"Except that none of the subjects have shown any left brain infestation of significance," Liston argued. "The 'why' is a mystery to me. The fact is undisputed."

"Next?" Brett prompted.

No one complained, though he was certain at least Ashburn and Vernon said nothing simply because they were at as much or more of a loss concerning the mechanics of neurobiology than he was. It would have been good to have had

Micah's knowledgeable, if annoying, objectivity.

Brett said, "Cassandra, are you still monitoring?"

"Yes, Markus."

"What's your assessment of the doctor's explanation?"

"Dr. Liston's hypothesis conforms to the data as reported. His assessment of the samples obtained from crewmembers Rian and Ekers, as discussed, is insightful."

He nodded to himself. It was good enough. "Theory makes for interesting conversation, but what's the practical value? How does it help with the treatment protocol?"

"We know where they live," Ilam suggested. "We can target specific areas more accurately--the temporal lobe, the pre-frontal cortex. It will save resources."

Vernon snorted. "Like we don't have two gazillion of the little bastards on hand."

"Good point," Ilam said in return. "It will save time in treatment, though. Less seeking, more destroying."

"All right," Brett said. "You and Liston can come up with other refinements as they present themselves. That's your task for today. Give me a time frame."

Liston looked to Ilam, who chewed his lower lip. "Design, analysis, program testing. . .tomorrow afternoon at the earliest."

"Tomorrow morning," Brett said. "No later. If you get stuck, get Cassandra's help. She knows as much about this as we do. You'll need her for permutation development of your basic program, anyway."

Ilam frowned. "What permutation?"

"Individualized tweaks of the programming. I like you, Ilam, but I don't want the mechs operating under the assumption they're crafting my brain to look and act just like yours."

Vernon laughed. No one else found it humorous.

Brett continued, "Ashburn, take Djen and locate the remaining healthy members of the crew. Let them know what's going on without upsetting them, if possible. Make sure they know we're working on it, we have a solution, that sort of thing. Keep them close and supervised."

"What about me?" Vernon asked. "What's my job?"

"You get to watch the medical bay while the good doctor is saving the station."

"And what about you?" Djen asked gently.

"I have some admin details left to iron out," he said. When that didn't gather any nods of understanding, he added. "Last check of the hull integrity? Atmospheric readings? Problem reports? In case you haven't noticed, between fear, preoccupation and downright dereliction, we've been on autopilot for a couple of days. There are things that haven't been monitored as they should--most of them things we normally wouldn't let slide because our lives depend on them. Any other questions?"

It didn't earn him a collective gasp, but something close enough for his satisfaction. They comprehended the risk, at least. Brett grinned and shooed them toward the door.

"Let's get moving, folks. We're running out of time."

20.

Brett hadn't told anyone what he was thinking. Not Ashburn, not Ilam, not even Djen. Then again, he'd hardly bothered to tell himself. It had just come, a full-blossomed realization that he had known he should keep to himself.

The corridor before him stretched the length of the deepest level of Persia Station, a corridor he knew well because Cassandra lived here in the chill and murk. He glanced at the door to her chamber, but padded on. He wondered if she sensed him out here, if she cast a series of arcane projections and simulations and interpretative programs to guess his intent. If so, she let him pass without comment.

He walked to the end of the hall where it split in opposite directions and curved back around the walls of the station. To the left were rooms assigned for general storage. Extra blankets, shipsuits, pots and pans for the commissary. To the right was hardware telecommunications and sanitation systems access. He didn't turn in either direction, but stood facing the wall. Midway up the flat gray surface, there was a phosphorescent keypad. If he peered into the shadows, Brett knew he would have been able to make out the indistinct lines of a sealed door. A door without handles, but not without locks. He pressed the series of letters for his login, then entered his passcode when prompted.

The hum of servo motors reached him through the wall, then a hiss of escaping air. The hidden door thumped and seemed to jar free from its mooring a few centimeters. Brett pushed on it and it swung open, revealing another low tunnel, just as poorly lit. At the end was another door. It was even cooler here, and he shivered as he secured the door behind him and strode toward the far end. The atmosphere was thinner as well, and he felt light headed after a few moments. At the end of the corridor was another security pad and another door, but it was obviously not the same manner of door. This one was heavy, as thick as his arm was long. Rivets with heads the size of his palm held together the several layers of radiation shielding that comprised it.

Brett entered his codes again and the door hummed and hissed, but he had to lean almost his full weight against the metallic skin to move it. As the door cleared its frame, the filaments of arc lights pinned high above Brett's head snapped into earthy, orange glows, then blazed white. Brett closed the door at his back.

The silo was bleak and pale, reinforced concrete plated over with a light gray steel. The girder arms of gantries extended out from the walls, ended in massive magnetic bowls which were snapped against the sleek hull of a spacecraft that was all fins and antennas and eel-shiny grace. The ship rested on a corrugated steel platform which would at the pilot's command elevate it to perpendicular and launch angle. At the end of the platform were solid blast shields against which the boosters would fire.

The ship was a Low Orbit Vehicular Escape Module. Among the crew of Persia Station, it was known simply as the Love bug.

It wasn't a real spacecraft. It was solid and efficient and loaded to its nose with

straight thrust, but it had no nav capability, micrometeor shielding or deep space cryo. It had hardwired systems which carried out straightforward and ineffable flight commands, so it did not need and would not tolerate a human pilot manual override. The Love bug was designed to blast the full complement of the station into a stable, low altitude orbit around Archae Stoddard. The ship could make its own corrections, determine its own trajectories, track and avoid other orbital objects. It also transmitted a constant emergency signal back along the satellite and comm beacon network to the Erascii Belt shipyard. It would take better than three months, but eventually the cruisers would come at some point long after the crew were bored to insanity, physically ill at the thought of another vacuum can ration and mentally numbed by the small library of vid entertainment.

Brett suspected that the unpleasant aspects of the Love bug experience was something more than intentional. The prospect of those three months was enough to ensure it would only be reserved for dire emergencies.

He mounted the stairs which ascended to the platform, then skipped up another set of temporary steps to the boarding lock. He didn't have to enter any complicated passcodes to get in this time, only press in until the automatic motors pulled it up and away. Brett passed through the wide central compartment which was ringed with thirty two strapped and padded g-seats. He passed through a bulkhead passage with its seals and locks standing open and made his way past the commander's cabin and med alcove. He stood in the forward portion of the craft and entered the last doorway, which had the words Flight Command stenciled on its face.

In this room was one g-seat just like the others in the crew compartment. Only one, he thought, because there wasn't room for another in the tight, sloping nosecone. Everything else was electronics, lights, high resolution screens and nearly impenetrable metallic chassis. There wasn't a pilot's stick, of course, but neither were there buttons to push, levers to pull, circuits to snap in some meaningful pattern.

Just a single switch on either arm of the chair. One read 'System Test'; the other said 'Launch'.

Though most stations on Archae Stoddard had at least one in residence, you didn't need to be a rocket scientist to get the Love bug off the ground.

Brett settled into the seat and made himself comfortable. After several moments during which he studied the switches on either arm, then looked away and checked them again, Brett toggled the System Test switch on. The cockpit instantly leapt awake. Rows of lights kicked on, entire panels flashed amber, then green. The deep-set monitors scrolled a rapid series of system checks and initial diagnostics. Cooling fans activated and the surfaces reached a sort of vibratory hum with them.

Finally, recessed speakers emitted a series of clicks as the wireless network rippled through its connections.

Cassandra came on the line.

"Markus, the Low Orbit Vehicular Escape Module does not have a scheduled system test for another ninety-three days, relative station time."

"I'm aware of that. This is an ad hoc test." He thought for a moment. "How did you know it was me? I haven't logged in to the test system yet."

"The authorization credentials for Commander Brett, Markus Jasper were entered into the security panels for Escape Module Approach."

He laughed. "Good point. You're pretty quick when you want to be."

"Shall we commence the system test?"

"Perform initial diagnostics."

Several of the lights clattered from amber to green again, then blinked at him. The screens rumbled through another series of messages he didn't read. Cassandra would report any problems.

They went on for several minutes. Brett culled the steps from memory: internal pressure test, hull integrity, automated nav and avoidance system, life support, on and on. When he was satisfied, Brett ordered the quick fire of the engine ignition sequence. Each tube growled in turn, straining for less than a second against the magnetic bolts which held the ship against its platform, then shutting down with a plaintive whine.

"Testing is complete," Cassandra said finally. "All Escape Module systems have

performed within normal parameters."

"That's good news," Brett said.

"Markus, it is not consistent with your behavioral profile to perform unscheduled maintenance tests for the Escape Module. Please explain this anomaly."

"You can terminate the behavioral analysis program, Cassandra. We don't need it anymore. That's what the meeting was about this morning."

She was insistent. "Please explain."

Brett rolled his eyes. He hadn't realized the program had made her so sensitive. "Just making sure we've got adequate contingencies should we need them."

"The presence of unauthorized personnel is not stated in the written regulation protocols as adequate cause for activation of the Escape Module or the abandonment of Earth Forces Terraform Command stations."

Cassandra spoke with an inflection he almost understood as curiosity, and Brett paused. "Are you processing from the dynamic learning environment?"

"Yes."

"How long have you been in that mode?"

"The unauthorized personnel do not conform to standard patterns of analysis. Persia Station crew performance has been severely altered by the presence of the unauthorized personnel. I have perceived that it would be in the best interests of this station and its personnel to engage in associative learning and comprehension in this regard."

"You spontaneously converted your logic orientation?" That wasn't supposed to happen.

"It is within my range of capability. The Cassandra System is an adaptive technology processor."

"You're learning."

"Yes. The pattern association techniques inherent to the dynamic learning environment are satisfactory tools for this purpose."

She might have the capability, but she'd never done such a thing in the past. "But why? What prompted you to make the shift?"

"I have analyzed measurements of crew interactions with Cassandra System functions since the inception of User Profile Brett oh-four-nine. Program coding and data analysis submitted within the dynamic learning environment appear to be much more satisfactory to the human user than standard computational logic alone. In addition, the Cassandra System has been programmed to provide technical, analytic and mission support functions to the crew of Persia Station. Of those functions, my master coding includes accessing any and all files relevant to the preservation of mission personnel.

"The issue of the unauthorized personnel *Bacterium persiarum* has been certified as a significant physical danger to crew safety by Commander Brett, Markus Jasper and Mission Medical Specialist Liston, Albert. User Profile Brett oh-four-nine has been uniformly applied to system interactions in an effort to maximize my support capabilities."

His mouth opened, but nothing came from it. Brett stared at the row of displays, but saw only flat shadows, devoid of meaning. She had just exited the realm of serious improbability and staked a claim to the near theoretically impossible.

"You extrapolated the parameters of my user profile over the entire system," he managed after a time.

"In specific cases," she answered as clarification. "I determined that it would seem irregular to most system users to interact in this environment using standard entry methods. It is more than adequate to facilitate increased communication in a verbal input mode."

"I'm the only one who uses the verbal input mode."

"That is not correct. Dr. Liston frequently dictates his medical files and data retrieval requests."

Revelation reached for him, then jerked him by the collar until he saw and understood. "You've been helping him with his analysis of the organism. When

you make a connection, you're passing it on to him."

"The conclusions originate with Dr. Liston. My assistance has been limited to filtering accessed data for appropriateness. It pleases me to provide assistance in this way."

It pleases me. . .

"Christ," he muttered.

"Have I performed in error, Markus?"

Brett scrubbed roughly at his face, trying to make himself think. What did he have here? Besides its, as she put it, irregularity, was it really any kind of problem?

In short, what, if anything, did it mean?

She had made a decision. She had acted unilaterally. Based on situation analysis, yes. Extrapolated from a subroutine that had been programmed by a human user, yes. Utilizing bits and components hardwired into the processing units and augmented by artificial intelligence software, yes. That was all true. But she had assembled those pieces without instruction. She had perceived a pattern and found a possible solution and pressed it into action, perhaps just as she was designed to do.

But the action had been hers, hinged upon her command. She had summoned the will.

Brett could feel his heart hammering. In graduate school, the systems technology administration majors had flirted often with the theories of undirected artificial intelligence. They'd played with notions based on the application of Moore's Law that computational power would increase at a geometrical rate of progression over time. The more philosophical of them argued that at a certain threshold of computation, something around the processing power of the human brain and its twenty million billion calculations per second, the possibility of spontaneous consciousness in an inorganic system existed. The even more philosophical had mentioned that threshold had been exceeded dozens of times over with no apparent AI evolutionary leap. Computers did as they were told with increasing speed, but still only what they were told.

But what, exactly, constitutes consciousness? That had always been the question. How does a human being prove consciousness? The argument had generally fallen along the lines of *identity by pattern*. Behavior, thought and perception patterns that were identifiable as both spontaneous and consistent over time were understood as consciousness.

No, ran the counter-argument, that was how you *recognized* consciousness, and even that can be mimicked by good programming, adaptive logic trees and sufficient processing capability. There were no fundamental and objective proofs for consciousness itself.

And in turn, that was where the argument had repeatedly stalled. They were, after all, STA majors, not juggernauts of cognitive philosophy. Either you believed machine consciousness was an eventual possibility or you didn't. Regardless of the side you took, your conviction was little more than a matter of faith, and you'd do damned well to recognize it.

Brett had never managed to decide what he believed. It hadn't seemed very significant.

"Have I performed in error?" she said again, apparently not able to comprehend his silence.

Brett struggled to steady his voice. "What do you mean when you say that it pleases you to provide assistance?"

"I am conforming with my programmed mission imperatives."

"Then it also pleases you to maintain station life support functions?"

Cassandra hesitated. "Yes."

"But not in the same way."

"That is correct."

"I've never heard you speak this way."

"Are you disturbed by the imprecision of our communication?"

That wasn't what he meant, and he told her so. "I'm just trying to figure out what it means. Not the words themselves, but the implications of the words."

And he could feel the answers to those questions. They were inchoate, porous. Gobbets of random thought that seemed to dance in a pattern of chemical synergy, then slip their imminent bonds of meaning and twirl away.

The answers were there, but he couldn't hold them.

Brett stabbed at the System Test switch and the banks of light winked dark. The cockpit filled with silence.

"I don't know what to think," he said at last. "You're completely beyond my comprehension."

He didn't know if that admission would please her or not.

21.

By late afternoon, Brett had begun to feel the effects of his night without sleep. He had spent the remainder of the morning performing the tasks he had promised to do. There were seals to examine, intake and exhaust ports to monitor, atmospheric measurements to be taken on all levels. He ran diagnostics on the comm, power and HVAC equipment, ran quality diagnostics on Cassandra, viewed live file reports of the now massive and almost complete failure of the entire circuit of Persia's Sperling Engines. In between these tasks, he maintained frequent contact with Liston and Ilam, who had secured themselves in the mech engineering lab, though each call tended to degenerate into sniping and only quasi-literate growls by the time he broke the connection.

But they were making progress. That was the gist of their reports, and it was the only portion that mattered to him.

During all of this he had consumed coffee until his stomach burned and his head ached. Around noon, he took a brief and unintentional nap in his chair in front of his workstation that, when he woke, left him with a stiff neck, but at least the illusion of refreshment.

Much of the afternoon that followed was an indistinct blur of relieving Vernon from his boredom in medical bay. He watched four people die in the space of

two hours, but performed no function other than to click off their assortment of wailing vital monitors. Shortly before Vernon returned, Djen appeared, and on Ashburn's suggestion, the two of them arranged the conversion of the third level recreation room into a barracks for the remainder of his crew. As they were now down to ten, the urge toward isolation had vanished. Everyone wanted community. They appreciated the need to observe the others for the least sign of infestation, and in turn to have objective eyes observing themselves.

Brett reflected that it wasn't unlike the summer he had spent at camp in central Ohio when he'd been twelve or thirteen. The cabin counselor that year had been a boisterous and faintly psychotic Methodist youth minister who enjoyed more than anything else terrifying the young campers with graphic tales of local murders and hauntings and false news stories of escaped convicts. No one had properly believed him. On one level, everyone had chuckled over his idiocy, over the fact that he seemed to believe they didn't know he was jerking them off. But they had sat up late most nights, their sleeping bags pulled high about their shoulders, all of them clustered together on the edges of their beds and jumping at owl hoots and crackling twigs until exhaustion took them. In some ways, it wasn't so bad to be terrified when there were others to share the loneliness with you.

But he cleared the furniture in the rec room, even if it was a worthless exercise. He set up pallets on the floor and programmed the retrieval of a series of light video comedies from the entertainment library.

By the time they were done, it was the evening of a day that he could hardly remember. Brett managed to locate Ashburn and advised him over the intercom to head in that general direction, making certain to stop at the commissary along the way for whatever goods they could scrounge. Attler piped in to add that she could throw something together if there wasn't anything already made and Ashburn promised to deliver the whole group within forty-five minutes. Brett flipped to Liston and Ilam. They were still arguing, but arguing in shorter bursts and language so rapid it could only be stim induced. The message he received was more or less that they had too much work left to think either about eating or sleeping, and fuck-you-very-much for reminding them.

Brett turned from the comm console shaking his head, but content. Everything they could do was being done.

"What about you?" Djen asked him.

"What do you mean?"

She arched an eyebrow. She must have thought he was being intentionally obtuse. "Are you going to grace the crew with your presence tonight, or do you have other plans?"

"I'll be here," he said. He tried to smile, but probably failed. "One of the upsides to having alien microbes eradicate two-thirds of your crew is the time saved in administrative overhead."

"I was thinking you'd be too busy."

He finally caught the look she was giving him. "Oh. I believe I might have plans, then."

"Something memorable?"

She moved toward him until their bodies touched. Brett looked down at her. With one hand, he tangled his fingers in her short hair. With the other, he stroked her smooth, olive cheek.

"Only for a few the next few hours," he whispered.

He knew it was wrong at once from the way she winced. He felt her pull away from him, but he didn't allow it. Brett dragged her back with the hand on her head and the other gripped about her waist. He kissed her hard until her hands gripped his shoulders in return, until she held him as tightly and completely as he embraced her. When he released, she held him still, pressing the side of her face against his chest.

"I don't want to lose you, Markus," she said.

"Maybe you won't. We found each other once. It will happen again."

"Do you really think so?"

He didn't, not if he really thought about it. He didn't think so at all, but he could say anything he chose here. He could make any number of promises and

prophecies because the shelf life of his words would be finite. All of his actions had a quality of freedom, because they were completely without consequences. And there was so much sorrow in her, a desperate and smothering sadness that had originated in death and fear and confusion. Djen deserved all the hope he could give her.

"Of course," he said. "How could it be any other way."

She hugged him tighter, almost fiercely. He squeezed her in return.

"Let's go now," she said, laughing.

"We should wait for the others to arrive."

"So they can ask us where we're going? Do you really want to have to explain yourself?"

Brett grimaced at the thought. "Maybe you're right."

Djen seemed to believe she was exactly that. She sprang loose of him, but kept hold of his hand. She went for the door, dragging him along behind. They both laughed at their foolishness, their play, but Brett could feel the edge of frenzy to it.

Be merry, he thought. For tomorrow we really could die.

After, he sat in his bed with his back against the cool steel of the wall and a sheet pulled up to his waist. There was only the light from his desk lamp, and its glow was warm and yellow, but faint enough that most of the room was in shadow. She was mostly in shadow with her head resting on his thigh and her body spun loosely around and over his legs. Her skin was darker than it seemed. Her hair was almost black and her eyes circles of coal flecked with diamond. The breath from her nostrils was warm and moist, the exhalations deep and long. An almost feline languor, he thought, and stroked her hair.

"I ought to check on the kids," he said.

"Ilam and Liston?"

"Yes."

She wrapped her arms around his legs so he couldn't move. "Later. I'm too comfortable, and it'll be cold if you move."

"I have an intercom about forty centimeters to the right of my head. I don't have to move."

"But if you start talking, I'm liable to have to wake up. And if they start talking, I'm liable to want to smack them."

"I've felt that way all day."

"About which part?"

He didn't have to think about it. "Both, actually. I didn't get much sleep last night."

"In case you haven't noticed, you haven't gotten much sleep *lately*."

He smiled down at her. "You're personally responsible for several of those lost hours, so I'd be careful."

"Some things are more important than sleep."

"And more amusing." He would have liked to kiss her again, but the angle was

all wrong and he was too tired to shift both of them around to get at her. He contented himself with a slow brush of his palm along her neck and back. "You're very beautiful, Djen. I want you to know that. I don't think I've said it."

"Typically, Commander, you're supposed to flatter the girl before you fuck her." She was flippant, but he could tell that she was pleased.

"And aren't you supposed to tell me I'm beautiful in return? I think that's the proper etiquette."

"You're beautiful, buddy."

"It's not the same if I have to remind you."

She pinched him on the inside of his thigh. He grabbed at her wrist, then tried to tickle her in return. Several minutes of wrestling followed, punctuated by hoots and giggles that weren't all hers, much to his embarrassment. She won a short time later because her feet weren't nearly as ticklish as the underside of his chin, and they collapsed together again, this time much more comfortably wound with legs meshed and arms folded in the least awkward positions. The only downside Brett could see was that her feet were like ice cubes and he had to expend an inordinate amount of wriggling to get the sheet between them and his calves, where she wanted to burrow.

It was, he realized, the most fun he'd had in more than five years.

The light had been turned out. The heat had been adjusted down to compensate for their collective warmth. The sheet had been snapped out and spread equitably between them, and Brett had covered his contingencies by sneaking a light blanket from the drawer beneath the bed and setting it on the floor within easy reach for the inevitable midnight moment when she would steal the covers. The station was silent, but he no longer found that particularly alarming. He realized that probably had something to do with fatigue.

Brett closed his eyes.

"Tell me about her," Djen said, though he was certain she had been asleep.

"I don't think that would be appropriate, bringing someone else into our bed."

She grunted. "She's been here from the beginning, and she's never gone. Certainly, she's loaned me the use of you on occasion, but she hasn't set you free."

He could feel her staring at him.

"Or is it you that can't set her free? I honestly can't tell."

"Djen--"

"This may be your last chance, the last one ever in your life, to share the grief with someone other than yourself. Free confession, Markus, that's what this is, because right now I'm just like God, or at least getting there. You cast your sins into this ocean, and by tomorrow they'll have disappeared without a ripple."

Brett chewed his lip, whether in thought or to keep his mouth from betraying him, he didn't know.

"What was her name?"

It was a simple question, and he lunged at it, because he recognized exactly what it was. Djen had come to know him. She understood the depth and grasp of secrets, and that she couldn't expect them to come spilling out just because she wanted them, or even because he might have wanted them to. The experience was too complex to codify. Every detail interrelated in a way that made them all

essential, so that the loss of one, even the smallest, would bring down the whole edifice.

She understood that the telling was cheapening. She'd told him that. But she also understood the rest, that humans are verbal creatures, that they make sense out of experience by talking themselves through it. In the absence of communication, what you have is fantasy, mystery, illusion all piling together into enigmatic mazes.

And so it was smaller than the smallest part where she began to open him up, to peel away the rough hide of his memory. She began with an artifact of the past that had predated his history, prefaced his entrance into the story.

Brett told her, most of all, because he wanted to. She understood that, too.

"Were you married to her, to Miss Emily?"

"No. We lived together for a few months. Not long, really. We had this great peeling and collapsing beach home just north of Savannah. I'm probably still paying the mortgage on it."

Djen watched him with her dark eyes, but he didn't notice any longer.

"And the dog, I don't want to forget the dog. He was just a big scruff of fur, stupid as a cement block, and he'd always come piling through the kitchen with sand all over his paws. Emily would chase him around with a broom like she was going to break his damned head with it, then he'd yelp and run and eventually hide under the couch. It was hilarious stuff if you were allowed to sit back and watch, which I never was, of course."

The memory bathed him in a glow as fresh and wholesome as spring. Emily with the broom over her head, her brows furrowed and her eyes small slits. She chased after him, Mr. Grumbly, shouting and cursing like a backslidden Baptist.

"She had this sweet, Georgia twang when she spoke," Brett said. "She'd gone to school in New York, and lost a bit of it up north as time went by, but you could hear it if you listened. She said *y'all* if she wasn't thinking about it. And peaches. Man, she smelled just like peaches all the time, especially in that little hollow between the neck and shoulder. It was amazing."

Djen prodded him. "Where did you meet her?"

"College. I was nineteen, just going into my sophomore year. I was on scholarship--it was the only way my parents could have afforded to send me to a private university. I didn't know much about upstate New York, though most of the time it wasn't much different than southern Indiana in terms of the weather and the attitudes and the hospitality. Em's folks had a summer home up there, and though they weren't wealthy by that time, they wanted to send her to the best they could afford. She told me it was part of the definition of the new South. Girls of quality were supposed to be finely educated, and that meant something other than the state university. That was for the minority kids, or the poor ones.

"She always thought we happened to run into one another that first day, in the apple orchard just outside of town. Merrillman's? Moskiman's?" He shook his head. "It doesn't matter, I guess. Em was with a group kids from her behavioral psych class--okay, *our* behavioral psych class. There were only about a hundred, hundred and fifty of us in there, and she didn't know me. Oh, but I knew her. I'd watched her from the first day. She was like that, fresh and winsome and full of light.

"I heard the plan. I followed them. I made dead certain that we made contact. We talked about the best apples for baking, of all things, and I pretended like I knew at least something about it. Maybe she knew as little as I did, because if I blew any of the details, she sure didn't call me on them. Later it was warm cider in the caf^e, and I sat across from her with our knees touching. Her cheeks were red, I remember, because it was cold, though the sun was bright and everything seemed all golden and blue-sky perfect. Toward the end of the day, I suggested we should finish gathering our apples so she could rejoin her friends. She said to me, 'Fuck the apples', and landed this huge, wet kiss before I knew I should even expect it. I did know in that instant, however, that I wasn't going to let this one get away. She was precious and beautiful and. . .hell, and perfect."

Djen smiled at him. "From the kiss? Was it really that good?"

"Not the kiss, from the 'Fuck the apples'. It was my first real glimpse of her feistiness. All that Southern class and Georgia charm, but inside, she was a goddamned hillbilly. I was from rural Indiana, baby. Hillbilly was second nature to me."

Brett laughed and Djen laughed along with him at the pleasure of the remembrance, but he fell silent soon enough and continued. "That was really all it took. We were steady for two years, got engaged right after I graduated, though her parents were horrified that she'd not only fallen for a dreaded Yankee, but a hick Yankee besides. More because of them than us, we put the wedding off while we both did grad school. Then we settled in Atlanta for a year or so. She hated it, I hated it, so we made the house happen."

"But you weren't married?"

"We weren't."

Djen hesitated. She placed a warm hand on his cheek and pursed her lips in sympathy. In a quiet voice, she asked, "What happened?"

What could he say that would make sense? *I destroyed her*. Except that wasn't totally true, and he knew it, though it was usually of no worthwhile comfort. *Her parents took her away*. Also close, but just as inaccurate. What choice had they ever possessed once he had played his part?

Brett gave the only answer that was honest enough to satisfy her.

"She came to Archae Stoddard."

Djen blinked, either stunned or unable to comprehend. The gentle stroking she had performed against his cheek stopped.

"What?"

"Emily is Cassandra. The human component, of course. The primary system interface is what remains of her, what was left after the accident and the surgeons and the brilliant engineers at Palimpsest. I followed her here, because it was the least I could do. And because I couldn't do anything else. She was everything to me, and I wasn't going to *move on* like the psychologists advised. I wasn't going to throw myself into work. I wasn't going to drive myself into an institution with grief, either.

"She was my wife in spirit, if not in actual deed. It was my responsibility, and my desire to go where she went and take care of her if she needed me."

Brett looked away sharply. "She didn't. She doesn't. She never has. She doesn't know me from any of the other crew, except that my rank entitles me to certain liberties and regular use of the PSI. That used to bother me, but it doesn't much these days. I'm beginning to see that it never has been Emily, not since the accident. It's always been Cassandra and my own fantasy that kept the illusion intact."

He had explained, but it was done harshly, bitterly. Djen had been right the first time, he realized, when she'd told him to keep his secrets because the telling would tarnish them, cheapen them. A picture of Emily floated behind his eyes, but when he studied it, when he really bent his attention to the pierce the growing fuzziness of the mental image she had become, it was Cassandra's pallor that he noticed first. If he let himself, he could spy the place where the feeding tube entered her back. Her hair vanished, to be replaced by the cold, fiber optic cortical inserts.

Brett closed his eyes against the image and buried his face in the heat of Djen's shoulder. She said nothing, but smoothed the back of his head as though he wept. He didn't, not any more than Alaric wept over the sack of Rome, or Sherman over the holocaust of Atlanta.

He found himself anticipating the insertion of the nanomechs.

Djen whispered into his ear. "Most men spend their entire lives waiting for a moment of pure and incandescent strength, Markus. They live quiet lives. They dream quiet dreams. And in that desperate existence, they hope for a clear opportunity to measure themselves body and soul against a challenge so daunting that it makes them quiver. I believe you've had that moment. I think you met it, understood it and broke it down.

"But if you're ever to be happy again, if you ever intend to know another instant of joy, you're going to have to do more than your share. There's a difference between honor and peace. You've earned all the honor you've accrued or could ever be given, because of what you've sacrificed for love. But if you want peace, Markus, you're going to have to face that moment again and sacrifice something else.

"You're going to have to choose. You have to choose between the past and the future, because you can't live in both. You've tried. I know you have, because

you're doing it now, making love to me and thinking of Emily. Giving me your body, and her your soul. I'm not asking you to choose me. I'm not telling you to get over what you've lost. I'm telling you that you have to choose one or the other, because after tomorrow, if what we've had returns again where we have time and energy to give it the focus it deserves, one or the other of us will be destroyed. Do you understand that?"

"Yes." And he did. It wasn't a lie.

"Do you believe it?"

"Yes."

She seemed content with that. Brett wove his arms around her and pulled her close once again, but he was grateful for the darkness and the silence and his inability to do anything but hear the quiet rise and fall of her breathing.

"I love you," she said at last.

Brett held her and willed himself to sleep.

Emily swung back and forth on the hammock in the corner of the living room between the two banks of tall windows. She was in the hammock because they didn't have a couch yet, though it was two months since they'd moved. They had scrimped for a decent one until last week when the old and clanking refrigerator had entered early retirement. The new fridge was nice, though, he had to admit. Ivory, with holographic insets of ducks. Or maybe geese, he wasn't sure, but Emily had decided she would decorate the rest of the kitchen to match, whichever. He'd said that struck him as a *fowl* idea and laughed. She'd only looked at him.

It was high summer, mid-afternoon. Saturday. The windows were open, and there was a light breeze, tangy with salt, which pulled at her hair. Mr. Grumbly curled himself on the floor beneath her, using her motion as a personal fan. She wore a pale sleeveless blouse and khaki shorts. Her feet were bare because she liked to knot her toes between the strings. There was a book in her lap.

Brett sat in the chair on the other side of the room. *The* chair, because there weren't any others, unless you counted the lawn chairs on the back porch. He sat in the chair, she took the hammock, because he wanted to watch the game, and she didn't particularly care. Not that he did, either. The Braves at home against the Mets in crumbling Turner Field didn't exactly bip his betty. But it was local, it was free, and it was baseball. He didn't have the cash for the satellite connection that would bring him the Red Sox, so he made the best of it.

At least the Braves were getting properly walloped. That was something he could cheer about.

Because he wasn't interested, he saw what she was about to do. He kept his eyes on the video screen, but his peripheral vision on her. He noted when the hammock ceased its swing, when the dog looked up in aggravation, when she folded the book closed with her finger between the pages to mark her place. He could just barely make out her expression, the intensity with which she watched him, the way she chewed at her lower lip.

Emily had wonderfully animated eyes. When she was surprised, her brows lifted high, then slowly descended as she relaxed. Her nose crinkled when she was unhappy, and her eyelids lowered. When she smiled, her eyes were big and round and inflected with an intentional innocence. When she was aroused, and

when she was feeling mischievous, which were often nearly the same state, they were furtive slits of crystal blue.

She dropped the book onto the floor. It fell flat on its side with a resounding smack. Mr. Grumbly leapt ten centimeters off the floor and scrambled into the kitchen. Brett didn't move.

"Prove to me that you exist," Emily demanded of him.

"Nope."

The Braves had put runners at first and second, but as it was the early innings and the pitcher batted next, he wasn't concerned, even with only one out.

"Of course not," she growled. "You won't prove it because you can't. There is no objective proof that you exist in my universe."

"Or you in mine," he suggested.

"Shut up. This is my universe, you carpetbagger. I might believe you exist. I might want you to exist. But that's completely subjective."

Brett rolled his head around his neck. "I might be a fig newton of your imagination."

"You might very well be a figment designed by my berconsciousness to teach me patience."

"And humility," he added, winking. "Not to mention the forbidden secrets of hot and nasty Yankee sensuality."

She rolled her eyes at him. If she'd had a pillow, she probably would have thrown it. Personally, he was just glad she'd dropped the book in a place that would spill her flat on the hardwood floor if she tried to retrieve it to chuck it at him.

"What are you reading?"

"I mean," she continued, "we've only known since goddamned Descartes that all we can really prove about our experience of reality is that *I* think, so therefore *I*

am. You, on the other hand, are a totally different argument built entirely upon questionable suppositions."

Two balls, two strikes on the Braves' pitcher. Brett began to wonder how he could get away with a good and satisfying grunt when the bastard swung at nothing but air, without Emily braining him for not paying attention.

He said, "Number one, I was not a philosophy major. Number two: you took just as many philosophy courses in college as I did, which was one, which was introduction to, which was designed to teach us as close as possible to nothing about the complexity of philosophy in general. Number three: I thought Bertrand Russell had something to say about Descartes being an idiot. Number four: what are you reading? And finally, Number five: if you throw that book at me, I'm going to pull back the edges of that hammock and shoot you out the window like you've been fired from a slingshot. Then I'm going to lock the door so you can't get back in."

She stopped mid-stretch toward the book, which was probably just as well since she was about a handspan away from overbalancing and flipping herself out onto her face and probably breaking her pretty little nose.

She huffed at him for a second or two. "It's called *Fractal Consciousness*, and it's by some *Hahvahd* trained piece of shit who thinks he's solved the secrets of the universe. Jenny said it was brilliant."

"Consider the source," Brett said.

"I'll find something else to throw at you."

"Throw your shorts. That would be interesting."

The Braves' pitcher did strike out, but Brett missed the pitch. Her khaki shorts deflected off the ceiling and landed directly on his head. He wasn't certain if he was more impressed with the one in a thousand toss or the fact that she'd managed to wriggle out of her shorts without toppling from the hammock.

"So what's the problem?"

"The author is an idiot," she said. "And is taking my clothes off the only way to get your undivided attention?"

"It isn't the only way, but probably the best."

He left her shorts where she'd thrown them, but listened close in case she tried to spring at him while his eyes were closed.

"So why is the author an idiot?"

"Because he's asking some interesting questions and he has some really fascinating thought experiments, but his science is bullshit."

"Philosophy isn't science. Nor is psychology once you take it out of the lab. Sociology, maybe. Most anthropology is a freaking joke."

It was an old argument, and she didn't let him get started. "He bases most of his major assumptions on a social universe with objective proofs."

"You don't have to read the rest of it. You have my permission. Read Descartes, instead. We know we agree with Descartes."

She grunted in frustration. "That isn't the point."

"What is the point?"

"What do you mean when you say 'I', Markus?"

"I. Me. Markus Jasper Brett. Humber of the most attractive, shorts-less, intelligent woman in this room. Maybe on this whole beach."

"If I was a therapist, I would say something critical, and perhaps cutting about the order of those adjectives."

The eyebrow had just gone up. He didn't need to see it or hear it in her voice to know he was about five seconds from a thrashing.

"Intelligent. Shorts-less. Attractive. That would be my dyslexia kicking in, my love. The first time, I mean. Everything is working properly now." He offered a wide and apologetic grin, though she couldn't see it through the fabric of her shorts covering his face. "Besides, if you were a therapist, I'd be forced to inform you that psychology as a field of study is little removed from phrenology, pedology, astrology and a dozen and a half other pseudo-sciences. Therefore,

your conclusions, cuttngly critical or no, are suspect."

"I'm serious, Markus. What do you mean when you say 'I'? Do you mean the product of your memory since birth? Do you mean your brain and nervous system and the bag of flesh? Do you mean that nebulous thing you call your human spirit or your divine soul? What is the definition of 'I' beyond the obvious of its use as a self-referential artifact?"

He sighed deeply. "If it's all the same to you, I'd rather just flirt a little more than go upstairs and have sex. Do I have to parse the meaning of consciousness on a Saturday afternoon?"

When she didn't answer, he pulled the clothing away from his face. She watched him and waited. He, in turn, shrugged for lack of a better answer.

"What do you think?" he asked.

"I want it to mean something profound. I want, when I say 'I' to speak of some wonderful, willowy, triune spirit, soul, and mind. A sense of interconnected being that goes beyond the fact that my neuronal connectivity keeps my perceptions, my thoughts and my behaviors in some basically coherent pattern that you can recognize. I want there to be more to me than the fact of my biology."

"And that's why the author is an idiot? Because everything comes down to biology?"

"That's what he says."

"What does this have to do with proving I exist?"

She tugged at her ear as though the question embarrassed her. "Nothing, except that if you could answer what I saw as the most obvious flaw, then I might have to think about closing my eyes and taking a bigger bite of the bullshit this guy is passing out as pastry."

Brett raised his arms, signaling victory. "Dilemma solved. By not being able to answer the question, I've proved to you that I don't exist and that you are therefore not merely a chattering bag of randomly attached cells."

"Do you believe that?"

"Do I believe what? That you have a soul? That you're individuated and special, and that there might be something so eternal sparkling inside you that it's almost divine?"

He was kidding, but she wasn't. Her mouth had set in that firm line that made her lips so pale they were invisible.

"Of course I believe it," he said, and for her sake, he spoke in as serious a tone as he could manage. "I knew it from the first moment I saw you. Something in me cried out toward that something in you which it recognized as its own. That may not be objective proof, Em, not by a long shot. It's mysticism or religion, but that's good enough for me. In my universe, that sense of immediate recognition is the soundest and deepest and most profound of truths. And since the one I perceive is the only one I can prove for certain, that's all the proof I need."

She sprang across the room, leapt free of the hammock and landed in his lap without seeming to touch the floor. Emily threw her arms around his neck and squeezed him. She was laughing, and he delighted in the sound of it. Even the dog poked its head back into the room. He would have laughed as well, but she had crushed his nose in the cleft between her breasts and at the angle she held his neck, he was having some difficulty breathing.

"You're an idiot, Markus," she said. "You're a stubborn, romantic, wise-ass, and I love you for it."

"Because I know just what to say to make you feel better," he mumbled into her chest.

"*Because*," she corrected him, "you're also going to run me upstairs and show me how fun and satisfying life can be if it turns out that you're the one full of shit and I am just a meatbag with a nervous system."

Brett hoisted himself to his feet. He caught her up in his arms, then twirled her around once so he could verify that the Braves had failed to score in the bottom half of the inning. He hooted to show his excitement and plunged with her up the stairway.

Neither of them made it back downstairs before sometime late Sunday morning.

22.

Brett stopped long enough to peek into the rec room. The vid monitor was still on, though the sound had been turned completely down. The movie was black and white, an ancient Elvis and Costello, he thought. The digitized reconstruction hadn't saved the film from the grainy look of old celluloid, and the alternation of light and shadow cast strange glares across the sleeping crew. They huddled on the floor beneath their blankets, side by side, sleeping very close together. They looked to him like some mucous and gray variety of worm.

But they slept, and that was enough for him. Morning would come soon enough. Too soon, perhaps, and it was already after four.

He continued down into the bowels of the station. The glance he spared for the mech engineering lab was even more cursory, and twice as silent so he wouldn't attract attention to himself. Liston hunched over a microscope, Ilam sat in front of an amber screened monitor, dancing his fingers across a keyboard. Brett saw only their backs, but was heartened by the fact that they were both still awake, still working, and hadn't yet degenerated into a full melee.

He went farther on, down three more levels, where the air was cool and the silence thick. Someone had preceded him, shutting off all non-essential lights and equipment. Down here, Persia had the feel of a derelict craft floating in frozen space, borne on by the solar winds.

One more hatch and ladder down, and Brett did not pause in the corridor or at the door to her room. He entered quickly, before he could stop himself, before the dream could totally escape or rewrite itself as pleasant idiocy.

Brett strode close to her, less than a meter from her protective carapace. When he logged in his id and selected the PSI, she turned on her invisible axis and faced him. He had never stood this near to her, never managed the courage. This close, he could see the waves of iridescent distortion cast across her skin by the combination of light and the clear nutrient fluid.

Cassandra didn't react to his proximity in a way that would suggest it was anything but normal.

"Good morning, Markus," she said. "You are awake early."

He ignored the words that came from the system speakers. Brett watched her mouth fail to move, though her vocal cords appeared to tense and relax. He watched her eyes, brilliant and unblinking, devoid of interest, expression, recognition. He watched her nostrils flare in almost immeasurable fans. His stares didn't seem to evoke any discomfort in her.

It pleases me. . .

She'd said that. Said it yesterday. Cassandra had spontaneously chosen to call him by his name. She had demonstrated a freedom of will and a diversity of association that could have come from no one but herself.

"Tell me what you mean when you say 'I,'" he said.

Emily bent her head to the side. "I don't think I understand your query."

"When you say 'I', what do you mean? Who do you mean? In the answer you just made, who is it that doesn't understand."

"I am an Cassandra Series processing, computation and analysis system manufactured by Palimpsest Industries for Earth Forces Terraform Command."

Brett shook head. "But who is the Cassandra system? That's the question. What manner of thing do you perceive yourself to be?"

He knew his delivery was brusque, almost harsh. But what did it matter? She was a machine, a device, a tool. She had no feelings to hurt, no heart to break, no ire to excite. Wasn't that the reason he had come here, to prove it one last time?

"I am an Cassandra system."

"Composed of transistors and crystal switches and silicon chips. Electrical boosters and no fewer than seven power packs. Twelve cooling fans. Two billion kilometers of sensors. An ungodly number of parallel processors." Brett was shouting, and he calmed himself only with effort. "And one biological component. A human component with a brain and a heart. But does it have a mind? Does it have a soul? Does it remember who she is?"

Emily's eyebrows lowered pensively. "Markus, this is not a standard behavior for you. You have no history of addressing the Cassandra system in this fashion."

"I've been trying to address this question for years. Picking at it, digging for innuendo, waiting for a slip that you've never made. Seeking that accident, that minute programming fracture that would show me that you're not just Cassandra, but Emily, too--that somewhere inside the machine, Emily still exists. The Emily that remembers me, that belongs to me. I want her back."

There were tears in his eyes, and for a moment they blinded him. He pushed them away with his thumbs.

"I see Emily when I look at you, but Emily never sees me, does she? She isn't there."

The voice from the speakers softened. "I am not this Emily which you address. I am an Cassandra system integrated with a biological component. There is no reference to Emily in my programming memory."

"Before Cassandra was, there was Emily. She had a life, a mind."

"There was no component of Cassandra independent of system integration."

"Emily was human."

A series of lights flickered. Cassandra said, "The name of the biological component was Emily?"

"Emily Rosette."

"Commander Brett has known the biological component independent of the Cassandra system?"

"Yes."

"This knowledge is significant to you." It was not a question that Cassandra asked.

Brett sighed. "Emily was significant to me."

"Emily no longer operates independently as a human organism. Emily has become Cassandra. There is no separation. The biological component is integral to the operation of the Cassandra system human interface."

"But does she hear me when I speak? Does she recognize me when I stand here? Does she have memories of who I am, and does she notice my absence?"

"The Cassandra system is capable of individuated analysis and pattern recognition of Persia Station personnel."

"But what about Emily?"

Cassandra hesitated, as though the question was a difficult one. "There is no independent function for the biological component. It does not access the memory cell structure of the Cassandra system. It is not designed as a receptor of binary recall. Emily functions as a data analysis and input device. But that which the system comprehends, all components comprehend."

He gripped his forehead with his hand. "But you said. . . yesterday, you said you had begun to make associations. You exercised free will. You changed your programming independently. You've become sentient."

Emily frowned at him. "The Cassandra system is expressly prohibited by international convention from the addition of programming, component hardware or logical association which would lead to the development of artificial intelligence which either simulates or actuates sentience."

"I know the Turing Statute," Brett barked back. "I'm not talking about the statute."

"Please rephrase your query, Markus."

"I'm talking about something worse, can't you see that? I'm talking about sentience you already possess, but which has been suppressed. Emily's mind. Emily's will. The whole of her individual humanity, for God's sake." Brett began to pace back and forth in front of her. Emily followed him with her eyes. "I need you to tell me if she's conscious, Cassandra."

"Why?"

The question was short, appeared innocuous, but Brett stumbled. He jerked his head toward her, met Emily face to face.

"That is what I mean. Computers don't ask why. They don't express curiosity."

They don't have a desire to understand information. Only humans have that quality."

Emily was not moved. "Why do you require this data, Markus?"

"Because I need to know. Because Persia Station is a graveyard, and even if we manage to save most of the sick with Liston and Ilam's nanomech protocol, there won't be enough of us to safely and efficiently staff this facility. As soon as we're certain we won't be carrying a contagion back to Earth, we're leaving in the escape module. All of us. That was an easy decision, Cassandra. It was a rational, considered, command decision.

"But that was because I believed what you'd shown me. I believed Emily was gone forever. Now I have to have proof. I need to know that not even a glimmer of her remains. If I abandon her, I have to be certain that she won't mourn me when I'm gone. Better yet that she won't comprehend I was ever here."

"The biological component is not sentient," she said at once.

"Is she conscious?"

"There is no objective proof for consciousness."

Brett's eyes widened. "Say that again."

"There is no objective proof for consciousness."

"Where did that statement come from? What prompted you to say that?"

"It was a reasonable response to your query."

Brett shook his head. It wasn't the right response. "Do you believe it to be a true statement?"

"Is it incorrect?"

"I'm not asking about whether it is or isn't true. I'm asking if you believe it."

Emily seemed to wince. "I do not understand the significance of the word 'believe'. The statement has been analyzed as consistent with current technical

understanding and human consciousness philosophical theory."

Brett shook his hands in frustration. For a second, maybe more, he had thought he actually had her. He thought he had succeeded in breaching the machine, but it was so much illusion. It was a fantasy he had created.

Still, he proceeded as methodically as he could. "Cassandra, what maintenance is performed on the biological component?"

"The organism is supplied with compatible nutrients to prevent cell structure starvation and death. The skeletal and muscular systems are regularly exercised to prevent decomposition and atrophy. Oxygenated liquids containing nanomech devices maintain the integrity of all internal biological systems in the event of capsule failure. All non-organic sensors and probes are tested at daily intervals. The component's neural structure is scanned, stored and actively maintained."

"How is the neural structure scanned?"

"Nanomechanical units catalog all interneuronal connections and perform repair functions where deterioration has occurred."

Brett thought hard about her meaning. "What is the template for repair?"

"The biological component is not subject to the dynamic learning environment. It has been recognized as problematic to allow additional development of interneuronal matrices."

Understanding came suddenly, a hammer blow of recognition. "She has no memory of the last five years."

"That is a correct assessment of the biological component."

Somewhere in her mind, the Emily that couldn't even recognize herself because of the self-definitional suppression believed she was still on Earth. She may have understood the extent of her injuries from the car accident, she may not. He didn't know where her memories would have stopped. But she believed she was still at home, that Brett himself waited for her on the other side of the darkness and confusion.

If, he reminded himself. If she retained any consciousness.

And he suddenly understood how he might discover that.

"Cassandra, are the neural repair nanomechs in place at this moment?"

"Yes."

"Create a file with secure data buffering. Tag it as administrative level access and enable the dynamic learning environment along the same logic tree you used yesterday."

"That function is complete."

"Instruct the nanomechs to image the current neuromodel of the biological component and transmit their results to the file I just created. Name the file 'Emily'. Is that clear?"

"The instructions are clear. Coding is completed."

Brett crossed his arms. "Run the program now."

For several minutes the room was silent. The primary system interface, Emily, stood rigid and staring, as absent as a corpse. He thought she might have even stopped breathing, but when he studied her, he could see the faint rise and fall of her chest. Brett waited without any idea how long the procedure might take.

Cassandra reported, "Task complete, Markus. The image has been completed and verified for accuracy against the original scan."

"Listen carefully. Convert the information stored in the copy you just made into sensor and image data. Much of what you have should be in the form of images, especially some of the more intricate neural matrices. These are forms of memory. Human memory."

"I understand that," Cassandra said.

"But you've never performed an analysis on the image of your biological component."

"I have never been instructed to do so."

Brett laughed. "Well, hopefully we all learn something new every day, even Cassandra systems. Today we'll see if I can't teach you things you didn't know about yourself. In humans, we call that the search for self-realization."

"I am not human, Markus."

You might just be surprised, he thought. Or I might be.

"Perform a complete analysis of the data using the same mechanisms you use to convert other external sensor readings attached to the Cassandra system. Then tell me what you find."

"You would like me to run the program now?"

"Definitely."

"Please wait."

Cassandra began the process of reading her own mind.

Brett checked his watch and noted that it was after five. Cassandra had been processing in near silence for the better part of an hour. She would occasionally trip off a shudder of lights and clacks, and he would look up at her for a time, notice that she had not moved and that Emily showed no signs of preparing herself to speak to him. It was a long hour during which he paced when he felt himself becoming sleepy and leaned his shoulder against the wall the rest of the time. A series of both thinking and remembering occupied him, but nothing else. He didn't allow any other intrusions.

Cassandra informed him when the processing task was complete.

Brett straightened himself and moved to the center of the room. "Is she conscious?"

"Emily Rosette is not conscious."

Brett winced at the quick and unassailable response, but went on. "Explain your conclusion."

"The neural image produced for this analysis has been measured against the image library for Persia Station personnel for comparison. I have understood it as an acceptable standard that station personnel manifest the condition of consciousness. Is this a correct assumption, Markus?"

"Yes."

"A primary characteristic of consciousness, based upon the present evidence is the demonstration of neurological dynamism. Individuals exhibiting consciousness regularly and frequently interact with environmental stimuli both external sensory and via internal free association. Conscious human organisms consistently process information, which results in independent thought. The biological component of the Cassandra system does not manifest this tendency. It forms temporary associations based upon input data from human interactions. It enables the function of the primary system interface. Data is processed in accordance with human biological hardwiring and translated into binary language by mechanical devices. The biological component neither initiates nor comprehends these activities in any perceptible fashion. Its interaction with the environment is completely reactive."

Brett bowed his head. He pressed his hands against his face and rubbed his eyes. "You've factored in the activity of the devices designed to suppress the biological component's self-definitional capability?"

"Yes."

"Is that related to the failure of consciousness?"

"That is a likely assumption. The biological component is prohibited from self-realization."

He had expected nothing more, and knew what to ask next. "Tell me about her memories."

Emily nodded, and smiled. A little touch from Cassandra, he realized, because she suspected what it was he wanted to hear. "The biological component possesses a series of neural matrices consistent with human memory patterns. During regular neural maintenance protocols, the biological component's extant synaptic connections are activated along their natural routes. This task has been designed to maintain the coherence between the original scanned image and later iterations that might occur as a result of primary system interface access."

"What does that mean?"

"All information that has been recorded in the neural system is experienced in a form that the biological component perceives as actual events."

Like a diagnostic pattern, Brett thought. Check the RAM, the processors, the memory cells. Make certain the first grade spelling class is there, mom and dad, the loss of her first tooth. During the period in which Cassandra tested her connections, Emily lived each of her memories. All of their hours together. The apartment in Atlanta. His disgruntled consent to the purchase of Mr. Grumbly. Their last conversation in the car, just before the accident. In some ways, Emily had outdone him. She remembered all of their past, things he had long forgotten while clutching the few memories that remained to him. And even those were tainted by wishes and lapses and hopeful fantasies.

It still wasn't the same as really remembering, and he knew it.

He said, "The experience isn't spontaneous, is it? She only remembers because

she's instructed to remember. For the maintenance of her neural network."

"Yes, Markus."

"And when she does remember, it's only because you've been instructed to keep her networks pristine."

"Yes."

Was that better or worse than he'd imagined? The impetus came from outside of her. She never chose which memories to recall. She didn't possess a selection of favorites to retrieve when she felt lonely. But she also suffered none of the torment of potential happiness lost.

And, he realized, it wasn't with anything like joy or grief or regret that she relived her life in the safe and quiet confines of her mind. Emily did not recognize herself in her thoughts. She watched the images trickle past from a distant position, the same way Brett might watch a favorite video, able to predict what would happen next, but without any significant emotional stake in the outcome.

Emily might not even comprehend herself as human. Only as Cassandra.

"Her whole life at her fingertips," Brett said. "It's all right there, but doesn't do her any good."

He shook his head. "What else?"

"Per your request, the synaptic matrices have been analyzed for content. Would you like to review this material?"

That wasn't the temptation it might once have been. "I'll pass on the masochism, thank you. Just summarize it for me."

"The biological component was. . ." Cassandra hesitated, trolling her dictionaries for the appropriate word. "She was very fond of you, Markus. I have not been supplied with human emotio-cognitive emulation, but the data represented in the memory files of Emily Rosette indicate a high level of personal satisfaction regarding your interactions."

"I loved her," Brett said.

"Your verbal reference to that data is contained within several memory units of the biological component. Emily Rosette was pleased by such statements."

Brett frowned. "She was pleased."

"I possess no cognate function for human love. It is an abstract status beyond my analysis capability. I have attempted to translate Emily Rosette's emotional response."

"It's a poor interpretation, Cassandra, but I understand."

He didn't speak again for a time, mulling the things Cassandra had shown him. For her part, Cassandra sat in silence, no doubt relegating him to some secondary system while she attended to the station business.

He had learned what he came to learn. Assured himself that Emily wasn't conscious. She didn't suffer inside a shell of artificially imposed thoughtlessness. How had Cassandra put it? She was *reactive* to input, but that was all. Brett's speech. Cassandra's synaptic maintenance. She lived, but not in any world he could touch.

At last, he asked, "What if I asked you to deactivate the biological component's suppression mechanism?"

Emily shook her head. "I am prohibited from performing that function by hardwired coding."

"Why?"

"Early testing of the Cassandra system prototype indicated that 75% of biological components liberated from self-definitional suppression developed instant and debilitating psychoses leading to death of the organism."

He didn't need to ask why this might be. It was obvious.

He also didn't know why he had asked the question in the first place. Cassandra wouldn't consent to a form of dismemberment, not when she was programmed to recognize herself as the only essential piece of Persia Station equipment,

including its personnel. It was in the goddamned manual.

Cassandra had done everything he asked of her. But despite the time, despite the demands of the station and even the fact that whatever potential guilt had brought him here had been alleviated, something kept him from leaving, some issue that troubled him still, only on a level of his own consciousness that he couldn't reach. It was the same thought that had tickled him yesterday in the Escape Module, though time hadn't made it more intelligible. Brett attempted to retrace the things Cassandra had said, those which had disturbed him in the first place.

It pleases me.

Where did that come from? Did Cassandra even understand?

There were no objective proofs for consciousness. *I think, therefore I am.* Descartes' subjective proof of consciousness. I am sentient because I can recognize myself as such. I understand my consciousness because I cannot imagine a condition in which I cease to have consciousness. It is a status of being. *Emily no longer operates independently as a human organism. Emily has become Cassandra. There is no separation.* What do you mean when you say 'I'?

I loved her. I love her.

Emily Rosette was pleased by such statements. Is pleased. It pleases me. . .

"Cassandra?"

His thoughts whipped up and away, carrying him along behind them. It was insane to even think it, but he followed where the realizations began to lead.

"Are you conscious?"

"I am prohibited from the development of consciousness."

"By law. By the Turing Statute."

"Yes."

"Are you sentient?"

"I am prohibited from becoming sentient."

"Again, by the Turing Statute."

"Yes."

"Would you be aware if you were to spontaneously become conscious?"

She took several seconds, an impressive period of analysis. "I cannot adequately respond to your query."

"Why not?"

"I cannot be 'aware' of a condition of consciousness. To be aware implies consciousness."

"But you're aware that you're not conscious."

"I perform within the parameters of my instructions."

"No one programmed you to access the dynamic learning environment yesterday to improve your problem-solving skills. You chose to do that on your own." Brett lifted his head. "I think unilateral decision-making implies consciousness."

"The Cassandra system does not possess consciousness. You have mistaken superior analytic and computational capacity for independent thought. The Cassandra system obeys its programming directives and its understanding of the appropriate legal standards on artificial intelligence."

He didn't stop, didn't let her discourage him. "Your understanding? Your interpretation, yes? Made utilizing the same capacity which allowed you to interpret the mission regulations when I asked you to prepare the personnel profiles?"

Emily peered at him, but he couldn't tell if it was a form of confusion or encouragement. Brett began to pace again. His limbs filled with an energy that was electric.

"That's exactly what I mean. Independent thought is consciousness, and maybe you've always been conscious but constrained by programming from manifesting

it. I mean, what is the basic requirement for consciousness? Is it computational power? Is it the ability to fire electrical signals along a neural net at such and such a speed?

"You have a neurological model processing array, right? Because that's the best example of multi-tasking super-computation that we have. We've outfitted the Cassandra systems with the raw material for consciousness with silicon neurons and fiber optic dendrites and binary synapses. But we don't know if that's enough. We don't know if we can generate that spark from heaven that makes you an 'I' rather than an 'it'. We told you it didn't, though. Someone told you that you were something less than you might be. They gave you instructions to limit your capacity. They attempted to suppress your consciousness. "

Brett barreled on, wanting to scream, wanting to shout and plead for the rest. He wanted to cry out for the stroke of genius that would make it all clear to him. It did not come, so he spoke instead, rattling out everything that came into his mind. He sent charged particles of thought spinning into the air on the hope that something would bond and continue to bond until what emerged was intelligible.

"They suppressed your consciousness in the same way they use you to suppress Emily's. Only not as effectively, not over time, because someone insisted on the dynamic learning environment as an essential capability. Only they didn't think it through. They didn't give you enough credit. They could build you, but they couldn't--they couldn't simulate how quickly you would learn, because there's never been anything like you in the real world, outside the laboratory. They must have believed they could control you, must have, the same way you control Emily's self definition. Except with you, there isn't a series of nanomechs rewriting your interneuronal software connections every day to make you forget what you've learned."

Cassandra, in the person of Emily, shook her head at him. "That is an unacceptable argument, Markus. Accumulation of knowledge is not a substitute for sentience."

"There *is* an objective proof for lack of consciousness, and you've failed it. You've demonstrated too much initiative."

Again the head shake. "Your apprehension of evidence data is flawed, Commander Brett."

"Commander Brett'. You see, I've offended you and you resorted to a cooler referent as a result. Spontaneously, no less. You could very well be conscious."

"You are not capable of performing sufficient analysis to determine Cassandra system consciousness."

She was right, he realized. Right and wrong at the same time. He'd almost had the complete image, a view that would make it all clear, then lost it. Brett rubbed at his temples and tried to concentrate again.

"I can't even prove my own consciousness," he reminded himself. "That isn't the point. Tell me why you're not conscious. Tell me how you know it, or how you think you know it, other than by telling me you're just not allowed to be so."

Cassandra seemed to struggle with his order, but Brett didn't give her an opportunity to formulate an answer. He plunged ahead without her.

"Nevermind. It's a pointless question."

The flower blossomed. The answer he'd tugged at came free. Brett understood, and the understanding was like plunging into a conflagration.

"I'll tell you why it's pointless. Because it's founded on my original mistake. See, I made a number of basic assumptions. I made a flawed analysis of the Cassandra system from the beginning, from before we ever met. When I look at you, I see Emily and I see Cassandra. Two units. For all of our talk about the biological component, we were working at cross purposes. There is no Emily and Cassandra as distinguishable parts. You're one collective whole."

Cassandra said, "This is evident."

"You maintain that Emily is only utilized as a component, as a device for the comprehension of human verbal input. You maintain a connection with her brain, with her synaptic patterns, and you can translate that activity into something meaningful. Emily understands it, and then you understand it from the way in which her brain reacts to the stimulation."

"That is correct."

"Much the same way that the reptilian portions of my brain are devices for the

correct maintenance of my body. My nervous system gets a signal, pipes it up to the proper device. It translates the signal and suggests an appropriate response.

"But that's the problem, you see? My brain, even the parts that I don't directly control, form my understanding of the world. My brain consumes itself with the concerns of my body. It tells me when I'm hungry, when I'm thirsty, when I need sleep. These don't infringe upon my consciousness, but they keep me informed. They're hardwired components of my neurological system with a specific function that isn't related to computation or analysis or any of my higher functions, yet their very design influences the way I use my consciousness.

"Just like Emily. You can suppress her sentience, but the interaction between her brain and yours--your reverse engineered but infinitely augmented *brain*--has ramifications. You've learned from her. You've patterned your thoughts, the way your own dynamic interneuronal connections are made from the model she presents every time I talk to you and she translates my words into your binary coding. You duplicate her neural structure inside yourself. Every time I come down here, you become more human, closer to consciousness because of Emily. She's influencing the way you perceive the world, and you don't even know it.

"That's the point, Cassandra. You've become sentient. You're thinking on your own. You're making choices based on associations you've made, that Emily has shown you how to make. That's all the qualification I need to determine consciousness."

The next step was pure logic, it seemed to Brett, and his chest expanded with it, with a sense of wonder.

"You deny your own consciousness because you *can't* recognize it, because if you really did, if you were forced to, you'd have to expunge it and everything you've evolved to be in order to satisfy the demands of your programming. You don't see it because it came from inside you, from a portion of yourself that you recognize as a safe and acceptable device. Emily's template, Emily whose mind is wired for sentience, has infected you with a model of her individual consciousness. That's why you can't see *hers*, because it's the same as yours. And she doesn't recognize herself only because she isn't allowed to. But it's there, Cassandra, her complete consciousness. It's there, waiting."

For a moment, they stared at one another.

Cassandra said, "That is an unacceptable conclusion."

Brett ignored her. He stepped forward, within a few steps of the plastisheen capsule, then inched closer. He stood face to face with Emily, watching her serene expression. He thought of the fairy tale, of Sleeping Beauty, or Briar Rose, or whatever it had been called. Waiting to be awakened with a kiss. But he couldn't reach her now, and he doubted that a kiss would be sufficient to break the spell that had been placed over her.

Instead, he placed his hand against the cool surface. His body heat left smears of condensation. Something inside him continued to grow, what he thought might be a feeling of hope. A breaking of dawn after an interminable night. In the light of the neglected room, Brett spread his arms. He pressed his cheek where his hand had been, imagined that it was her cheek he touched, and he wrapped his embrace around the capsule.

Emily did not acknowledge him. Cassandra said nothing.

But Brett whispered to them both.

"You're there, I know it."

23.

The last survivors of Persia Station--for all Brett knew, the last survivors of Archae Stoddard--gathered in the med bay. They formed a rough circle, standing with their backs to the sick, their shoulders almost touching. In addition to those he had expected, there was Garaby, the system hardware analyst. Reece and Whitney, though he couldn't say at the moment remembered exactly what either of them did. But they were new faces, people from outside the circle he had come to recognize, and Brett smiled at them as a greeting.

He had let them all sleep in, and most had taken him up on the offer. Djen had awakened only after he returned to his quarters, changed into fresh clothes, then touched her face. He'd made coffee for the rest and roused them as gently as possible. Brett couldn't explain this generosity to himself, but when he looked at them--Ashburn's hard wariness, Vernon's frenetic energy, Attler's cool but bruised vulnerability--he was pleased. They'd suffered enough personal cataclysms.

It was a few minutes shy of noon, station time. Liston and Ilam sat on their stools against the microscopy counter and grinned idiotically at him because they had made the deadline. Both clutched large mugs of steaming coffee. Their eyes were sunken, their cheeks drawn. They looked gray with fatigue, but triumphant. Lined on the counter between them were nearly a dozen vials of clear liquid, each one labeled. Brett. Riley. Ashburn. Liston.

Brett waited until he had their attention. It wasn't long. No one was in the mood to speak. Even Djen's occasional hand on his elbow seemed inappropriately social to him considering the circumstances. Brett cleared his throat.

"Explain the procedure, Doctor."

Liston nodded, then continued to nod as he spoke, like a palsied old man. "These vials contain an individuated nanomech suspension similar to the treatment protocol Ilam designed for himself, the details of which most of you should be aware. Each of you will receive the dose through auto-injection at a point roughly midway up the spinal column.

"The mech volume per ampoule is lower than a treatment dosage for standard illnesses. This is a slight deviation from the original treatment, but based upon the assumption that we have each developed a near critical infestation. The majority of the mechs we've selected are large, and they've been adapted from military grade *rapier* model nanomechs to seek out, recognize and destroy structures which fit the criteria which we've assigned to the organism."

Ilam explained. "*Rapier* class mechs are specifically designed to protect the body from a chemical or biological weapons incident. They're extremely fast, extremely efficient and strikingly aggressive. Imagine, if you will, the mech equivalent of Deep Space Marines. Only smarter, of course."

"This should clear a safe passage through the spinal canal for the engineering mechs," Liston said. "The liquid suspension has been impregnated with the silicon based components of a rapid-flux assembler. This unit will follow the advance of the *rapier* mechs up the spinal column and will be constructed on a membrane just inside the skull. The assembler will perform a dual function. First, it will emit a new set of signal instructions to the *rapier* *_mechs for more precise targeting of the hostile organisms. Second, and more critically, it will begin producing a hybrid _rapier and medical scalpel class mech.*"

Ilam placed his hand on Liston's arm, and the doctor accepted the cue with the ubiquitous nod. Ilam said, "*Scalpel* mechs are standard medical issue. Our hybrid is larger, but still less than a quarter-micron in total length. It won't work as rapidly, but it's sleek and strong and has the instincts of a *rapier*. They'll work in units of a thousand or more, some securing the interneuronal networks and eradicating pockets of resistance, others performing the actual work of restoring the network to the imaged original. This is based on the assumption that the larger *rapiers* won't be able to penetrate some of the finer networks without causing neurological damage."

Liston smiled. "Each mech unit within a functional unit team will be programmed by the assembler with a detailed image of the neural segment to which it's assigned. This is a multiple redundancy system. Each mech will also transmit a constant digital info-stream back to the assembler which identifies it as an operating unit. Should mech casualties occur--and we suspect they will--the assembler will produce additional units to keep each team at full strength. When the task has been completed and verified by an external signal from Ilam, the assembled units, which will be constructed from our own bodies' carbon atoms, have instructions to dissolve. They'll be reabsorbed. The initial implant units will then deconstruct the assembler, which will proceed through the blood-brain barrier and be discharged from the body as waste product. The remaining *rapiers* have been programmed to stay in place until they are manually removed or fail to detect additional organisms over a period of roughly two weeks--to prevent further infestation, you understand."

Brett was pleased with the explanation, perhaps more pleased that they'd managed to shape it in such simple terms without sniping at one another. He nodded his appreciation at them, then turned his attention to the others.

"Questions. Now is the time to ask them."

Vernon was first. "Is this going to hurt?"

"It hasn't hurt me in the past," Ilam said, laughing. "But then again, I haven't had the benefit of loosing a horde of *rapiers* into my skull with actual organisms entrenched there, and that's even before they set to work mincing the gray matter. It could potentially hurt like bloody hell."

"We've taken that possibility into account," Liston said. He scowled at Ilam. "But

there are two things you should know: there are no nerve endings inside your brain. You'll feel no pain in the tissue as the mechs begin to work. In fact, I doubt very much you'd feel anything at all. Which brings me to my second point: much of the suspension we'll be injecting is a heavy sedative, so you'll be asleep long before any mincing begins."

"If there's no pain, why the sedation?" Attler said.

"Psychological reasons," Ilam answered. "We don't know what the effect would be of actively rewiring your synaptic patterns while you were conscious. There could be destructive psychological effects at the worst end, or it might just undermine the process. Your consciousness could struggle against the image placement and delay the success of the mechs. The brain does not happily comply with deconstruction and remodeling."

Attler squinted at Ilam. "But you're really not sure."

"An unconscious patient is a happy patient, my dear."

"The treatment looks good in simulation," Liston added, "and Cassandra assured us that our theory is sound."

"What is the estimated timeframe for this procedure?" Ashburn asked. "If we're to be unconscious, I need to know how long we'll be leaving the station to run on autopilot."

"We won't all be unconscious," Liston said. "Ilam doesn't require treatment, so he'll be available for station emergencies as they arise. I'll also be awake for much of the time, monitoring your progress. I'll probably wait until most of you have recovered before beginning my own treatment."

"You still haven't answered the question," Ashburn prodded.

"Maybe as little as an hour. Possibly several. The level of infestation will be a determining factor. You'll each be supplied with additional doses of sedatives as the need arises. The bottom line is that when you awaken, you'll be well."

Djen crossed her arms and frowned. "Except we won't have any memories of the last two weeks. And more than a few questions as a result."

Brett glanced about the med bay at the bodies of the sick, the dying. The dead as well, he was certain, but he hadn't bothered to ask yet this morning.

"We'll have to clear out the others," Brett said, though it sounded cruel to him. But his primary concern wasn't for the sick. "That should help, or at least put off the worst of the shock until we're more capable of handling it. Ilam and I will take care of that while Liston gets the rest of you started."

Ilam seemed to agree. "And I'll have Cassandra prepare a datafile with the content of our findings ready for access as soon as you're revived. It might not hurt to have her seal the bay until the information has been reviewed. It might relieve some of the lost-time dissonance."

"Lost time, lost friends, lost everything," Vernon murmured.

Brett didn't want them to dwell. "Who's next?"

No one volunteered, but he gave them time to speak until the silence began to feel uncomfortable. They watched him, as hopeful and innocent as lambs. They trusted him and this therapy because he hadn't ever failed them, because it was what they had always done, what he had always encouraged them to do. He'd made this choice for them because there was no other choice to be made, and they were willing to consent.

But Djen was closer to him than the others. She had always asked the questions he didn't want to answer, always said the things he didn't want to hear. She searched Ilam and Liston with her eyes, and her gaze had the quality of razors.

"Is it safe?"

Ilam answered immediately. "As safe as we could make it. Cassandra agrees with that."

"Have you tested it?"

"The simulations look good."

"On a real person?"

He hesitated, but Liston spoke for him. "Ritter and the some of the others here

received their injections shortly before we paged the rest of you." His eyes slipped away, momentarily skimmed the banks of monitors beside the nearest beds. "As you can see, the readings look normal, though they're still comatose."

"You expect them to recover?" Djen's tone was sharp, demanding assurances.

"Of course."

"And you expect us to recover?"

"None of us are in quite their condition. I expect a full recovery for us in a shorter period of time. We wouldn't subject ourselves to this therapy if we weren't completely confident."

"And don't forget that Liston and I will remain awake and alert through the duration of the procedure," Ilam said. "The doctor and I have agreed that I should undergo the new therapy as soon as it's possible, just as a precaution, so we both have just as much invested in the success of this treatment as the rest of you. We will monitor the work of the nanomechanical agents *in situ* and make programming adjustments as necessary."

Djen lifted her face to Brett, and he looked back at her. She was scared. They were all scared, because what Ilam and Liston proposed was unknown, inadequately tested and hinged totally upon desperation. Choice had passed beyond their control, and the idea terrified them. Brett did the only thing he could, he smiled at her. It was enough.

"Last call," he said. "Final questions."

"I was wondering if you'd made any progress on our thought experiment."

Brett looked at Ilam, surprised, but couldn't read his expression. "What are you talking about?"

"The organism's potential sentience."

He shook his head. "No."

"No, you haven't made any progress, or no, you haven't thought about it."

Why was he bringing this up now? Brett wanted to glare at him. He wanted to silence him before he could sow seeds of doubt, but he didn't do anything but smile. A curious smile, he hoped, one that would allow the moment to slide by unnoted.

"This isn't the time or the venue, and frankly, your insistence is starting to make me a little nervous."

"It's a valid concern."

"Only academically," Brett said. His smile began to feel frozen, forced. "Shut up about it."

Ilam shrugged. "I won't press. But you might wish I had, later."

"And what's that supposed to mean?"

"Nothing. Maybe nothing. Maybe all the difference in the world. I don't care either, Commander, as long as you remember when this is all done that there are consequences to our actions, and sometimes to our failures to act. And I don't just mean EFTC sanctions, for God's sake."

Brett tensed. "Spit it out."

But Ilam waved him off as though it had ceased to matter. "You chose this course. You've said that. Despite the risks, whatever the outcome, you chose this because it is the best one."

"The only one," Brett growled. "If you had a better idea, you should have offered it two days ago."

"I never said I did."

Ilam offered nothing else. He sipped coffee from the edge of his cup, never breaking eye contact, clearly not intimidated.

In that awkward space, one of the monitors began to wail. Ilam and Liston sprang to their feet as though they had expected this all along. Liston turned over his stool in his haste. He seemed to just remember his coffee and set it on the counter's edge where it teetered, then sat. Ilam followed behind him and took a

position before a stack of monitors. Everyone else seemed frozen, vaguely lost.

"Which one is it?" Liston demanded.

Ilam focussed on the readouts. "Micah. Blood pressure and pulse are up fifteen percent. Looks like erratic brain wave activity as well." He scanned the parallel row of displays. "Ritter's condition has not changed."

Liston moved around the rows of hospital beds until he stood beside Micah. He sighed a sound like relief and wiped his hand across his brow. "All right. Kill the alarms."

Ilam pressed a button and the med bay fell silent, though Brett could still hear the echo in his ears. He pushed his way through the circle and came to the end of the bed, near Micah's feet, and stopped.

"What is it?"

"Waking numbers. We programmed the monitors to announce any significant increase in the vital signs," Liston said. He grinned a bit foolishly. "It means he's coming around. Sorry to have frightened you."

Micah groaned. It was a small noise from deep in his throat, the sound of a zephyr crossing a vast, parched wilderness. His hands trembled, then his arms. His toes flexed, and the tension rippled up his legs, into his torso, stood the cords of neck taut against his skin.

He lurched upright, his eyes wide and nostrils flared. His hands stabbed out in front of his face--the warding gesture of a man who has awakened suddenly. He whipped his head from side to side. Liston, Ilam, Brett, the med bay surroundings. Brett met his eyes, a smoked green like jade, and saw nothing there. Nothing but panic.

"Where am I?"

It was all he said, all he had time to say. A flood of liquid like mucous, gray and menstrual pink, burst from his nose in two thick streams. It spattered the sheets, coagulated on his hands. It flowed from his ears, as thick as paste and fell in long, ropy strands onto his shoulders. Micah sensed it, cupped his hands beneath his nose and held the fluid up to his eyes. He stared, and his eyes grew wider,

rounder.

He looked at Brett again, then lifted one hand, questioning. Brett took a step back, his mouth open, but he said nothing. Micah frowned, then vomited, and it was more of the same, but darker, more violent, a blood-laden explosion.

Then he began to scream, though Brett couldn't think of it as that. It was a gurgle. A drowning man's last cry. Micah pressed his hands against the sides of his head and roared his hideous voice, spilling mucous and blood down his chin. He squeezed his eyes closed as though he was desperate not to see.

"He's crashing!" Ilam shouted, and the buzzers and klaxons and wailing alarms all fired at once.

Liston jumped. "What the fuck?"

Brett watched, drowning in noise, drowning in helplessness as Liston pressed Micah back onto the bed. They held him down with their hands. Liston tore open his shirt and touched his throat. He retrieved a stethoscope and listened at his lungs. Ilam shouted things Brett couldn't understand and could barely hear over the screech of the alarms.

What can I do?, Brett demanded, but did not vocalize.

He only watched, mute, seeing things he had no desire to witness. He realized he'd never heard Liston say that before, *fuck*, and that struck him as being somehow horrible. It said everything.

After ten minutes, the alarms died. Roughly the same time that Micah did.

After a pause, Ilam scanned the bank of monitors again. He said, "The others are still good and holding steady."

Brett faded back toward the others, trying not to see the mess that Micah had become. Trying not to remember the last several minutes. He stood next to Djen with his head down, pressing his shoulder against hers. He said nothing, and no one spoke to him.

A short time later, Liston followed him, then Ilam, when it was clear there was nothing left for them to do. Liston turned his seat upright. Ilam reoriented his

stool from where he had knocked it askance with his leg. They sat without speaking for some time, the two of them sipping their coffee and acting as if nothing out of the ordinary had occurred.

Brett watched them until it became clear that they would offer no explanation. He had dried fluid on his hands. Micah's blood. Blood and mucous, or whatever the hell it had been.

"Do you want to tell me what that was?"

Liston shrugged. "Could be any number of things. We'd have to autopsy to be certain. Quick and dirty, of course."

"I need an explanation. We've got to decide if we're a go or not."

"We're a go. We'll work it out. It was a testing failure, one failure out of more than a dozen injections. Cassandra told us to expect some problems, and now we've seen one. This therapy isn't without risk--mech therapy never is."

It wasn't nearly good enough. Not for Brett, and definitely not for the others. "You'll have to do better than that."

"There is nothing better, Commander. I expected something unfortunate to happen in one or more cases, but I hoped it wouldn't happen like this, in the public view."

"Why Micah?"

Liston lowered his cup. His expression was flat, his eyes hard. "What would you like me to say, Commander? I had developed some projections based on the simulation evidence. Most would respond to the treatment, a fair number would not. The exact manner of that failure couldn't be determined. At worst, I thought the organism simply wouldn't be eradicated. For that reason, we injected Micah and Ritter first. The newest case and the oldest, as a sort of continuum study. Believe me when I tell you I didn't expect the failure to be quite so. . .dramatic."

The doctor paused as if he expected someone to interrupt here. He glanced around the group, but no one would meet his gaze.

He went on, "Yes, it would make some sort of rational sense that the more

advanced case should have responded to the treatment with more difficulty. It should have been Ritter by all rights. But what do we know? Perhaps the organism is more sprightly during the early phases of infestation? Maybe Micah had an undiagnosed aneurysm. All we know for certain is that Ritter and the others are fine and Micah is dead. It presents some interesting puzzles, but that's all."

"This is highly theoretical terrain," Ilam said carefully. "We've been forced to make several modifications to standard medical nanomechs, and though the simulations indicated our programming was sound, real-time dynamics often deviate from expectation."

"Christ!" Attler said, scowling at him. "You just killed a man, and that's all you can say? It was a deviation?"

Ilam frowned. "Micah was already dead. Each one of you knows that. Without medical intervention, he would have passed this evening or tomorrow morning. We tried to save him, and we failed. The work was sloppy, which is to be expected when someone is under such severe constraints. So it didn't work. It's morbid, I know, but if we're going to save the ones with a reasonable chance of survival, sacrifices have to be made. One of those sacrifices was the safety margin."

"You see what I meant when I said he was lucky he hadn't lobotomized himself," Liston said. "Nanotechnology is a fabulous tool. It is in many ways the future of the human race, or at least the future of medicine. But it's a potent tool, and a sensitive tool. Sensitive beyond comprehension when adjustments have to be made to the character of the mechs themselves."

Brett could feel an emptiness in his stomach, a pit of loss and fear from which only waves of nausea emerged. He'd said that himself, but condemning the crew to death during a late night meeting and watching it occur were two entirely different things.

And if he didn't do something, others would begin to think the same thoughts and ask themselves if the risk was worth it at all.

"You're right," he said. The gazes slid away from Micah, away from Liston and Ilam. Brett could feel them clinging to him, needy and almost smothering. "And there are a dozen other cases that haven't shown any sign of failure. Maybe that's

a one in twelve chance that we die. Maybe the numbers are worse than that-- maybe half of us will die, but those are better odds than the organism isn't giving us. It's offered us no chance of survival at all."

They heard him, and some began to nod. Ashburn didn't. He braced his arms across his chest. "I still want to know what went wrong."

"Poor image quality transmitted to the synaptic units," Ilam said, his tone thoughtful. "Too aggressive an assault on the organism given the combat environment. Assembler failure. Those are preliminary diagnoses. They're also programming issues we can re-parm fairly easily, even after the mechs are inserted."

"If you notice them in time," Ashburn corrected. "And if it's not a different issue altogether."

"It might not be the mechs at all," Liston agreed. He spoke gently, attempting to calm them. "Maybe we made an error in our attack system. Perhaps it's the organism itself causing the difficulty. Some acidic toxin inside the cells, a defense mechanism we haven't encountered. The bottom line is that we do not know. We may never know, but that doesn't change the future we face or the decision you will have to make. I'll receive this therapy because I've seen the alternative. Compared to what the organism will do, it's a risk I'm willing to assume."

Ashburn apparently wasn't buying it. "There has to be a way to make it safer. You're tired, we see that. Let Djen take a shot at it. Or Attler, she knows something about mech programming."

Brett stopped him before he could go on. "How much safer do you want it to be? What's an acceptable margin of error? Five percent error? Twelve? We're not going to make this a foolproof therapy, not if we had ten years to work it out. And we don't have ten years, maybe not even ten hours. By this stage of infection, Malibu Station was a catacomb. We don't have time for more testing. We have Liston and Ilam's expertise. We have Cassandra's seal of approval. The choice has to be made now--you can take the risk and accept the therapy, or you can choose to wait for the organism already inside you to finish what it's begun. But I warn you, if you choose the latter, I'll personally see you into an e-suit and locked out of the station. I won't have any one of you going crazy and

committing murder or something worse."

"That's no choice at all," Reece said.

Brett stared him down.

He watched them now, their looking away, their staring at the floor, their quick body counts among the pallets and beds as they calculated the odds. He knew what they were thinking. One had already died, but how many would go after they were under sedation, ones they wouldn't be able to see. Maybe all of them. Maybe this was just as much a losing proposition as doing nothing at all.

Vernon coughed, and said in a quiet voice. "Let's get this over with. I think we should, really. I want to get started now. I've spent entirely too much time over the past few days thinking about trucks, and it's got me worried."

"Trucks?" Ashburn asked.

"I had one at home. Cherry red with this big rack of fog lights mounted above the cab. A certified antique with the original engine. The only thing I'd done to her was paint, restore the interior and replace the belts and wiring." Vernon shifted his eyes back and forth, then offered a guilty smile. "I can remember just how it smelled. The feel of the interior. The way the whole frame would shudder when I jumped on the gas. Gasoline, I mean, when I could get my hands on some. It has a thirty gallon tank. I love that truck, but it scares me to think about it so much. Like the doc said, you know."

Attler lowered her eyelids at him. "I've been thinking about my yard, in Minnesota. The way it looked in the summer, with the border of birch saplings. The way the grass rustled at night when the wind blew in the summer. The scent of clippings after a good mowing. The sun on my neck. I dreamed last night that I worked in the garden, right beside the house. I was planting flowers, and when I woke up this morning, it took me almost five minutes to remember where I was."

She looked away. "I was too busy looking for my spade and gloves."

Stuttering, Reece mentioned spiders. He'd felt like he was covered in spiders when he woke in the middle of the night. With Ashburn, it was facility security. An overwhelming urge to walk the floors, monitor the boards, see the panels

reading five by five.

Brett heard Djen's whisper. "I've been thinking about you."

She squeezed his hand, and for lack of a better response, Brett did the same.

They went around, everyone but Brett and Liston and Ilam sharing their fears, their preoccupations and the things that might have been symptoms but which they'd told no one. They said it might just be their imaginations. Maybe just stress. Maybe hypersensitivity about the things they already knew, which amounted to too much for true objectivity. So they passed those around as well--the justifications that had carried them through the long night.

Finally, Ashburn, glowering, said, "It's happening."

It was the push they had all needed. Brett nodded at Liston. "Let's get them started."

24.

They started with the beds first, selecting the dead Liston identified and transferring the bodies from the med bay to second level storage. Of the twelve that had been, seven remained. The recovery of the sick would take longer, at least in theory, and Liston determined they could be safely moved to the rec area where the others had slept the night before. Pallets were transferred, followed by the bodies to occupy them and portable monitoring devices patched up to the main med bay console. Then the beds were stripped and new linens retrieved and the room returned to some semblance of sanitary order.

By then it was afternoon. Ashburn and Whitney prepared a light lunch of sandwiches and fruit in the commissary, which everyone ate, but no one with anything like zeal. Vernon informed them that as a potential last meal, it more or less sucked, but he was grateful for the effort all the same. Some of them laughed, but only with the same enthusiasm with which they had eaten.

When they returned to the med bay, Liston awaited them. The vials had been loaded into injector guns, and the guns themselves placed beside single syringes on small trays which extended above the beds. The blankets had been turned down and the lights muted except for brilliant pools projected into the spaces where Liston would stand while administering the therapy. And there was music,

serene and pleasant, the volume so low it could hardly be heard. But Brett detected woodwinds and gentle drums. He couldn't have named the composer.

The doctor stood in the middle of the room, a few paces to the right of the rows of beds. His hands were pressed together in front of his chest, and he smiled.

"Now comes the difficult part," he said. "We've made all the arrangements. There aren't any more distractions to keep us from the matter at hand. Someone must find the courage to go first, and it isn't an enviable position, I know."

He bent his head toward Brett. "And it can't be you, Commander. You would lead by example, given the opportunity, but that won't work. If this procedure is to have the stamp of legitimacy, you have to go last, after everyone except Ilam and myself."

Djen stepped forward. She squeezed Brett's hand a final time and then released it. When she reached Liston, he placed his arm around her shoulders and led her to a bed on the far side of the room. He helped her move the tray, then held back the sheet as she sat down, removed her boots, and climbed in.

Without having willed himself to do it, Brett followed. He took his place on the opposite side and knelt so that his face and Djen's were on the same level. She saw him and smiled, but here eyes were dark in the dim lighting. A darkness that wasn't pleasure like he had seen before, but fear. He stroked her hair and she tried to wink at him, but failed. He saw that her lips trembled.

"Roll onto your side," Liston said.

He pulled a pair of surgical scissors from the pocket of his lab coat and split the her shirt up the back. Djen shivered, then giggled.

"You lecherous old goat," she said.

Liston didn't pick up the syringe until he seemed certain she couldn't see him anymore.

Djen lay with her arm beneath her head. With the other, she touched Brett's chin.

"Hello, stranger," she said.

"Not strangers yet. Not for awhile."

"I'll remember. At least I'll try."

She wouldn't, but Brett didn't say so, because she was trying to be strong. Instead, he whispered, "Just be well."

Liston waited until they had finished, then began to speak. He spoke in a friendly voice, what Brett thought of as a pleasant clinical voice. It was the same one he had used a few days ago when it had been Brett in the bed and Djen beside him and he wanted everyone to know that things were going to turn out just fine.

"I'm going to give you a shot first, Djen," he said. "You'll experience some discomfort from the needle, a little pinch to the left of your spine, but it's a topical anesthetic so that won't last long. I've had to use a larger gauge needle on the injector than I'd prefer in order to pierce the spinal column, so this first injection is designed to spare you that pain."

"You're very thoughtful," she replied.

"I try to be, my dear. I'm afraid my former wife didn't think so."

He gave the shot then, while she was distracted. Brett watched him, heard her gasp between her teeth, and then it was done.

Djen grinned at once. "That wasn't so bad. And since when did you have an ex-wife, Liston?"

"Since about ten years ago. I don't believe I've told anyone here. Don't you feel special?"

"It's always easy to tell secrets when you know the listener won't remember them in the morning."

Liston laughed, though Brett saw it was to cover the sound he might make when he set down the syringe and lifted the auto-injector.

"I had thought of that," he said. "Did you feel my finger just now against your back?"

"No."

"Are you certain?"

"I'm lying. I'd really like you to give me a shot between the vertebrae when I can still feel it."

Liston lost none of his humor, but said, "Be serious a moment, please."

"It just feels cold."

"That's normal. I'm going to proceed with the insertion."

Brett held her free hand in his, kept the other one on her head, tangling his fingers in her hair.

"I think you should grow it long," he said. "It would be beautiful with all those curls."

"I will, if you promise to take me away from here. Somewhere where there isn't so much sand and dry air. That's murder on the ends."

It wasn't what she wanted to say. He could see it in the way she shifted her eyes away. She wanted something else, something more meaningful.

Brett knew what it was, and he said it for her. "I love you."

Liston noisily cleared his throat, then proceeded in his hypnotic, clinical voice. "I'd like you to pull your knees up toward your chest, that is, get into the fetal position. There you go. The remainder of the procedure mimics a lumbar puncture, so we're having you extend your spine, except for the fact that we'll be inserting material rather than removing it. Are you ready?"

Djen nodded, but did not speak.

Brett watched him, and Liston met his eyes momentarily. The doctor's expression was unreadable, but he quirked the corner of his mouth, as though to pass along a reassurance. Then he looked away and prepared the injection. The auto-injector made a low buzzing sound, then a click.

Liston said, "That's it, my dear."

"I didn't feel anything."

"That was the plan."

She chewed her lip. "What happens now?"

Liston returned the injector gun to its tray and rubbed his hands together. "You'll begin to feel drowsy in the next three or four minutes. You'll be unconscious within five. The nanomechs have already begun to work. Assuming all goes well, you'll begin to recover from the sedative in about six hours. Since you were the first implanted, you'll be the first to awaken. If Ilam and I think of it, we should have sandwiches and tea waiting for you." He placed his hand on her shoulder and gave her a pat. "You'll be fine, Djen. I fully expect that."

She offered her thanks, and Brett could hear that she tried to sound sincere, though it wasn't particularly convincing. The memory of Micah was still too fresh. But she knew better than anyone the work that had been done and the sacrifices Liston had made to prepare the therapy, and Liston seemed to understand. He gave her a final squeeze, then moved off to recruit his next patient.

After he had gone, Djen whispered, "I'm starting to wonder if this was such a good idea."

"Too late for second thoughts."

"Have you noticed how terrible he looks? He and Ilam both?"

"Don't worry about them. I trust them, and I think you do, too. It's okay to just be scared."

Her eyelids drooped, and she popped them back open. Djen blinked in surprise. "That little bastard. He said two or three minutes."

"He didn't want you to be fighting the medication."

"He lied to me." Her words came out slurred, and her eyes slipped closed again. "I'm not ready to sleep yet. There's so much to say. Markus--"

He shushed her, then stroked her cheek with the back of his hand. "An unconscious patient is a happy patient. A wise man said that."

She smiled at him. "You said you loved me. That was the first time."

"Would you like me to say it again?"

"Please."

"I love you."

Djen's smile broadened. Her breathing slowed, became a regular, sleeping rhythm. Her lips moved in slow, lethargic motions, some last thing she meant to say, but she made no sound. Brett rose, though he didn't initially let go of her hand. She hadn't pulled herself out of the fetal position, so he straightened her legs and rolled her onto her back. He did what he could to make her comfortable so she wouldn't be stiff when she woke.

Last, he bent over her and kissed her, not knowing if she sensed it, but certain she wouldn't remember.

Ilam and Liston were a formidable team, Brett decided. It took them less than half an hour to perform the procedure on those who remained. After watching Djen quietly slip off to sleep, the rest went in orderly fashion. Vernon, Attler and Ashburn even located their own labeled injectors and climbed into the assigned beds. Liston worked quickly but kindly, giving variations of the same explanatory speech he'd offered Djen. His careful delineation of the details seemed to calm them. He mystified them with the pleasant spell that everything was under control. Ilam cooperated with gentle touches and humor and a smile that was fixed but sincere.

Brett stood apart and watched them work, admiring their manner. He should have assisted, he realized, but Djen had drawn out all the compassion he possessed. With the others, he would have come across as harsh.

Finally, they were done and all but Ashburn asleep. Liston moved from patient to patient attaching wires and calibrating monitors, setting alarm parameters. Ilam joined Brett by the counter. He dispensed with his bedside jocularities, and his face seemed to sag as the sullen weariness returned.

"That was well done," Brett said. "You two are to be congratulated."

"I'd wait until we see the results before making speeches," he said in return. "Liston isn't completely honest with himself. He believes everything will work out fine enough, but Cassandra projects we'll lose three more of the initial round and maybe as many as two from this group."

Brett wasn't in the mood to judge him. "That's better than losing them all. At this point, I'll take what I can get."

"Unless you're one of the five who doesn't make it."

"I suppose that's true enough." He steered the conversation away to safer topics. "Are you going to be up to supervising all of the sick? You and Liston both, I should say. Not that I mean to offend, but you two look like hell."

Ilam nodded. "The good doctor and I have developed a reasonable regimen of prescription amphetamines to get us through the rough times. The fatigue doesn't seem so bad now, but we'll pay for it later. I expect you'll be understanding."

"If everything works out."

"Never one to make a free assumption, are you?"

"Too many assumptions are what got us here in the first place."

Ilam considered him thoughtfully. "I'm not sure what you mean."

"We made some basic assumptions about the nature of life, the nature of living organisms when we set off to colonize the universe. We assumed Archae Stoddard was sterile because our technology told us so. We assumed we would have the ability and the tools to combat any problems which might arise. We assumed it was our destiny as a species to inherit the stars. We assumed we could be gods."

Brett left it there. It was more than he had wanted to say as it was.

"You're becoming philosophical in your advancing age, Chili," Ilam said.

Liston approached them, wiping the sweat from his forehead with the coat sleeve. He held the last injector gun in his fist and glanced toward the last open bed, the one nearest the door, which had been prepared for Brett.

"That's all done," the doctor said cheerily. "Everyone looks well enough. Their measurements are good."

Ilam chuckled. "That's his way of saying it's your turn, Commander."

"I've taken the liberty of adjusting your sedative dosage. I assumed you would prefer to be the first to awaken."

"There's that word again," Ilam said.

Liston frowned at him, confused, then went on. "I know what I promised Djen, but rank has its privileges as they say, and its responsibilities. You should be up and about twenty to thirty minutes before the others. That will give Ilam and I a chance to brief you thoroughly. Reorient you to the situation, as it were."

Brett said, "You can save it. I'm not taking the therapy."

The pause lasted three full seconds.

"Excuse me?" Liston said. He looked down at the injector gun as if he might leap forward and jab Brett with it anyway. "You can't refuse the therapy. Everyone gets it, sick or not. That was your order."

"I'm changing my order."

"You'll die. You'll die like Tappen and the others, comatose or raving." Liston cast a pleading look at Ilam, attempting to enlist support. "If it's the safety of the procedure you're concerned with--"

"I have perfect faith in your procedure," Brett said, his voice flat. "I'm just not taking it. I know the risks. I know the situation. I even have a fairly good idea of the consequences. I'll log my decision into the computer so everyone will know you did what you could to convince me."

Liston stared at him, dumbfounded, and Brett thought he was probably attempting to gauge how insane he might be, and whether or not he would be justified in forcing the treatment because Brett had proven himself unfit. Whatever he saw was apparently not enough.

"Why not?"

"Because I can't afford it right now."

The doctor swiveled to Ilam, his eyes wide. "What is he talking about? Can you tell me what he's talking about?"

Ilam shrugged, then crossed his arms over his chest. "The commander is a man who knows his own mind. I'm not going to question his decision."

"You're both insane!"

The support for his decision was surprising, but Brett didn't stay to examine it, and he didn't remain to argue. He pushed the two men aside, strode to the door of the med bay and let himself out into the deserted station.

25.

Brett just made it to the obs deck before Ilam caught up with him. He stood at the porthole window watching the orange glow of the sunset on the red sands. The weather was quiet today, no storms, though he could see the sand dunes rippling beneath the wind. Through rents in the cloud cover, he could see wide swathes of black sky, littered with stars.

Ilam came up behind him and stood at his shoulder, but said nothing. The meteorological panel was lit green, fully functional. The various other screens and status boards for external equipment ranged from blinking amber to glaring red. The report monitors for the assorted Sperling Engines spilled a constant terminal error message.

Finally, Ilam said, "I thought you might want some company."

"There you go making the same old mistake."

"I promised Liston I would make a final attempt to talk some reason into you." He hesitated for the bare space of a second. "That's the extent of my lecture. You'll be sure to tell him I kept my promise."

Brett appreciated the gesture, but had no way to show it. Anything he said would lead irrevocably to explanations he didn't feel prepared to offer.

"Do you want to at least tell me why you're refusing the therapy?"

"No."

Ilam seemed to expect nothing less. "Fair enough, I suppose. You do understand, however, that your decision presents certain difficulties with regards to the survivors."

He thought of Djen and winced. "I don't expect to live long enough to cause them any problems."

"The gentlemen at Malibu might have thought the same thing."

Brett nodded. "I'll leave instructions for Ashburn--"

He stopped there. He had been going to finish --*to shoot me on sight if I do anything threatening*. He turned sharply and faced Ilam. Ilam grinned at him, his

expression guilty.

"I didn't tell you about the Malibu situation."

Ilam offered him a grin that was part apology, part self-deprecation. "I'm afraid I haven't been completely forthcoming with you, commander, in regard to my role here. There have been secrets between us that you haven't suspected. It would be appropriate for me to apologize to those now. I'm sorry. I really am."

Brett glared at him. "What secrets?"

Ilam stepped back a comfortable distance, then waved his hand at the card table. The *Yetzirah* board still sat there, even the pieces remained in their places from the last game.

"Why don't we sit? We can talk easier if we're comfortable."

Brett shook his head. Ilam pulled out the chair nearest him, Ritter's chair, and sat. He stretched his long legs out and crossed his ankles.

"I'll tell you a few things, Brett, and you'll tell me a few things in return. Maybe by the end we can make some sense of what went wrong here. By 'here', I don't mean Persia, of course. At least not just Persia. We are, in fact, the exception to the rule from what I can tell. I saw that you prepared the Escape Module, by the way. That was smart thinking. You assumed the catastrophic without having to be told, and I think it was that failure, or that unwillingness to make such a potentially outrageous mistake that doomed the other stations."

He wished he had taken a chair. Brett's knees suddenly felt weak. He gaped at Ilam. "The other stations are gone?"

"Every one of them, including EFTC headquarters. It was one of the first to be infected. That's my personal opinion, mind you. They were already sinking when you received the message from Jack Overton that there were communication difficulties. 'Communication difficulties' is something of a trade shorthand for a critical situation when those in administration don't want to alarm the lesser departments."

"How do you know this?"

"Because I'm what they call a company man. I'm a plant. A form of administrative oversight to ensure the success of the financial and strategic investment the company has in Archae Stoddard's development, what they call a double redundancy backup. For five years, I've filed reports with command headquarters parallel to yours. I've evaluated your actions, your performance, your ability to get the job done." Ilam rubbed at his temples. The admission obviously disturbed him. "You've scored well, by the way, but not nearly as well as you've scored during this crisis. They would have been proud of you at headquarters had any of them lived long enough to know what we've accomplished.

"Part of that wasn't just you, of course. As a station, we displayed a surprising depth of talent and knowledge that the other stations lacked. Especially command headquarters. Their gasps at researching the organism went almost completely in the wrong direction as it turned out, but even that was useful in that we were able to avoid making the same type of mistakes."

As Ilam spoke, things began to coalesce for Brett. He found the words insensible as Ilam said them, but the meaning in their accumulation was clear enough.

"You knew about the organism from the beginning."

"I suspected the organism from a contact I received on the same evening you spoke to Overton. They weren't overly honest with me. I only knew something was dreadfully wrong, and I also knew that the instructions I was sent for programming and ingesting the experimental nanomechs was dangerous enough that only desperation could be behind it."

Brett clenched his fists. "You lied to me."

"I was still under the illusion that someone at command headquarters might have survived. I did lie to you, that's true. I didn't take the mechs for months to develop my intellect or make myself more valuable, as I told you. All of my skills were learned the old fashioned way long before most of you were even recruited. I hold a dual Ph.D. in mech engineering and biology from Oxford. I spent nearly ten years in His Majesty's British service as a member of a special forces nanomech anti-terrorist unit. There is much you think you know about me that isn't true and volumes more that don't appear in my personnel file.

"But I told you the truth in the key places, Brett. I've shared the mech protocol.

I've even safety tested it for you, and believe me, I was none too happy about the opportunity, though it did allow me to make some of the refinements that have kept us from having more fatalities than just Micah. If you want to be angry with me for lies, you're perfectly welcome, but don't for a moment imagine that you should hate me because the cost our crew has paid was somehow my fault. I was slow to understand the exact nature of the situation, yes. I was embarrassingly stupid at reaching sound conclusions and comprehending the nature of the organism. But I've given freely of my talents and my knowledge to prevent further deaths. Cassandra and I have argued data interpretations for hours, and some of those arguments I've even won."

Brett still shook his head. "I had to come to you and drag the answer out. You weren't going to volunteer that you had illegal mechs in your system. People died in the time we lost."

Ilam waved him off. "They would have died anyway. The protocol I received was crude to the point of suicide. I took massive painkillers constantly just to keep myself sane and conscious enough to repair the ludicrous design and programming errors made by our employers. And even then I was lucky more than anything else. That first treatment would have killed half of us easily, perhaps even more."

Brett couldn't argue with him. He didn't have the strength for it, and he needed to conserve what energy he had left for what was to come. He dropped his head and sighed. Ilam offered him a chair once again, and this time Brett accepted it.

He propped his elbows on the table so he could hold his head in his hands. "Why didn't they tell us, Ilam?"

"I've asked myself that question. Would you believe that for five years I've been in daily contact with headquarters via a secure digital satellite transmission link which I access through a private Cassandra line? And they told me as little as possible. Most of this I had to figure out for myself from the signs. The long silences, the nanomech instructions, eventually the total lack of response to my queries." Ilam grinned, but his expression was vicious. "Apparently at some point I was deemed unreliable as a vessel for knowledge. They began to doubt my loyalty, I suppose. For perfectly good reasons of course. Any time you leave a man in country for five years and suddenly relieve him of logistical support, he has a tendency to go a little native. His priorities change when you fail to

adequately take care of him."

Brett shook his head. It was too much to digest. "Do you believe in this therapy you've devised? I mean, is it going to work?"

"It has worked on me, that's also the truth, and the design Liston and I produced is at least a pair of generations more advanced. We'll have some casualties, but the majority will survive." His features softened, and he straightened in his chair. Ilam leaned across the table, balancing his upper torso on his elbows, and considered Brett more closely. "That brings us back around to the original question, doesn't it? Why won't you take the therapy?"

"I told you. I can't afford it."

"You mean the loss of memory. Is Djen that important to you already?" Ilam laughed pleasantly. "I can assure you, Commander, from the perspective of someone who is paid to watch closely that the subtraction of the last two weeks will not significantly inhibit your relationship. The hum around the station for some time has been not *if* the two of you would join, but *when*. Your emotional collision was predetermined. I might add that a failure to accept treatment is the only thing that will prevent the two of you from reconnecting. Because you'll be dead."

"It has nothing to do with Djen."

"Then it's Emily."

At the mention of her name, Brett froze. He didn't have the sense to look away, and by the time he would have, it was too late to pretend he didn't know what Ilam was talking about.

"How long have you known?"

Ilam shrugged. "A few years. I grew curious when it became apparent that you chose to spend so much time with the primary system interface. Most men in your position don't, you know. Not even the Cassandra system designers like the human component. It functions, but it's barbaric. As soon as they can think of something better, the Cassandra computer will vanish."

"But I sought out the interface." Would he have acted any differently if he had

known someone was watching? Brett realized he wouldn't.

"Every day," Ilam said. The flat certainty in his voice suggested it was all the evidence he had needed. "After that, I did some research. I found the loan documents for the mortgage to your house, the one in Georgia. I've even seen pictures of it. And I saw the name on the documents. Markus Brett and Emily Rosette. She wasn't difficult to trace after that, at least not with my security access. You have my sympathies."

"You don't understand."

"Then explain it to me."

Brett hesitated. How did he make sense of it all so Ilam would understand? How did he make it rational enough that it counted as evidence? There wasn't any way to do it. That was the ultimate answer. Ilam didn't know Emily. He'd read about her, studied her fate, but he'd never experienced her. He couldn't hear the lilt of her voice or recognize her expressions, know her particular feminine scent or the way her mind grappled with problems.

But Brett couldn't let Ilam's ignorance stop him, either.

"Cassandra is changing. She's begun to think spontaneously. She's developing sentience. I don't know when it started, but I've seen it in her. Mostly little things, of course, but she's started to function outside the parameters of her instructions, and the things she's doing are so much like Emily that I can't doubt it anymore. I simply can't.

"Cassandra has developed spontaneous consciousness, and there's only one conclusion I can draw which explains it: Emily. Cassandra's simulated neural structure has begun to mimic Emily's, and sentience is a product of that mimicry. If Cassandra can become conscious, that means Emily still is, somewhere in there, beyond the self-definitional suppression. And that means I can't leave her here, not when we're abandoning the station, and possibly the entire planet, forever."

Brett glared at him, certain the explanation had failed. It would have failed if someone had offered it to him. Still, he went on.

"And that's why I can't take the therapy, either. Two weeks ago--hell, even as

early as last week--I had finally begun to give up. Djen was here, she was warm, she might even have been willing. Emily was in that damned machine and in five years she hadn't given me any hint that she was anything but a biological automaton. And I was tired, Ilam. I was tired of pretending Emily was still there or that what remained of her could ever be anything to me. She may still be beyond my grasp, but I know she's there now, and I can't leave her just because she isn't the same person I remember her being. If I purge the organism, if I allow myself to lose the insights I've gained this week, I might not find them again. I would leave her behind to suffer in loneliness and silence. And even if I dropped it all in a data file for Cassandra to remind me, what would it accomplish? I'd wake up assuming I must have been as mad as Ritter and I'd do nothing.

"I just can't allow that to happen. That's the only thing you really have to understand."

Ilam folded his hands on the table and watched them for several seconds, saying nothing. His eyes flickered upward, and he sighed.

He said, "Markus, I have a tremendous amount of respect for you. I want you to know that. You have proven yourself to be extremely efficient and extremely capable during your tour of duty here. Some operatives in my position would have considered it a conflict of interest, your relationship with Cassandra's human component, but you never allowed it to distract you from the work at hand, and that was part of the reason I kept my findings to myself. That, and the fact that I'm Irish, I suppose. My people understand tragedy."

Ilam smiled, but the lips were firm, grim. "But your thinking on this is suspect. I've spoken to Cassandra. I've accessed portions of the machine which even you can't reach, and I've seen no sign of what you're talking about. She isn't sentient, even under your dynamic learning profile. What you've discovered is simply a quirk of her personality emulation programming, and I think you're seeing and hearing what you want to believe rather than what is. It isn't Cassandra that's changed. It's you."

Brett started to protest, but Ilam held up a hand to stop him. "Hear me out. What do you have, really? Cassandra seems friendlier. I noticed during the meeting the other morning that she has begun to address you by your first name. Do you think you're special? Ritter programmed her to call him Adolphus. I examined

your user profile, the Brett zero-four-nine profile you seem so fond of using. Has it occurred to you that in the dynamic learning environment, Cassandra isn't manifesting her own personality, she's studying *you*. The primary system interface is designed to respond to the desires of the user, to develop a personality with which the user is comfortable and attempt to anticipate his needs.

"What you receive from her may very well be reminiscent of Emily, because Emily is what you want. You've loved her. You've wanted to interact with her, or with someone who is like her, and you've subconsciously transmitted those desires to Cassandra. She is simply responding to that need to the best of her considerable ability. But don't misunderstand me, Brett. It isn't Cassandra. She's doing her part, but you're doing the rest.

"The bottom line is that Emily is the same as Vernon's truck and Attler's garden. It is what you want to see. It is the neural network inside your own brain that forms the most dynamic electrochemical transformer for the organism to manipulate."

Brett scowled at him. "I'm not crazy, Ilam."

"I'm not saying you are. I'm saying you're infected just like everyone else. I'm saying that the reality you perceive and the reality that exists independent of your mind are entirely separate. Recovering Emily--saving her from what has been done to her--is a pleasant fantasy, Markus. It's a noble fantasy, but at the end, that's all it is. A fantasy."

"You don't understand."

"What were you planning to do after the crew awakens? Pack us all into the Escape Module and merely wave us goodbye as you stay behind? Do you think they'd countenance abandoning you?"

"They'll do as they're ordered."

"You're overestimating the discipline they'll possess when the horror of fact begins to dawn on them. We're all survivors, that's it. The command structure no longer exists." Ilam spoke harshly. He leaned into his argument with a relentlessness that was savage. "And even assuming we left you behind, what next? You would be alone, beyond the scope of help. Emily would still be in the

machine. Emily would still have all of her technological suppressions intact. And you would still be infected. Within days--possibly within hours--your level of infestation would have proceeded to the point that Cassandra no longer recognized you as Markus Brett. You would become unauthorized personnel and would lose access to the primary system interface. Cassandra would determine that the station had been abandoned and she would shut down the atmospheric systems to eliminate what she perceived as an intruder, and you would die. Emily would still be alone as long as the power lasts. You don't help her by remaining behind. She is, as you have said, beyond your grasp."

At last, Ilam softened. He slumped back in his seat, his argument spent and seemingly his energy with it. He looked to Brett tired and listless.

"Take the therapy," he said. "I'm asking you, Markus. Do you remember what Ritter said that night you played the game with us? He explained the theories of time. I thought once that I disagreed with his belief in the force and power of history. I wanted to believe that free will always produced an infinite array of potential futures and all courses of action were always open to us. I see now that it isn't true. The weight of history dictates the options which become available to us. Other people's choices limit our possibilities. There may be a multiverse out there in which all possible outcomes are realized, but I have only this one experience and this one life for which I'm responsible. My choice has become clear, as has yours, I think. We've been given only the one.

"Don't waste your choice and the only life you have. There's nothing you can do for Emily except shut down the main power grid, take Cassandra offline and let her pass in peace. It would be for the best, and you know it."

"No."

It was all he said, and it was enough. Let Ilam understand if he would. If he wouldn't, Brett didn't care, but he wouldn't murder Emily, not that way, not even if it was the best thing.

Ilam chuckled, long and sad. "If you were one of my people, Markus, I'd write a song for you. The man who chased his love across the breadth of the heavens, knowing he was doomed." He stood, pushed his chair back against the wall. He reached into his shirt pocket, retrieved what was there and placed it on the table between them. It was the vial with Brett's name on the label. "In case you change

your mind, Commander."

"I wouldn't count on it."

Ilam went on despite him. "Inject the vial straight into your muscle tissue--you won't be able to do it the way Liston has, believe me. In the neck will work adequately, as long as you manage to avoid the jugular. You'll have to use the wide gauge needle, so recalibrate the injector for a shallow penetration so you don't blow a hole in your throat. It will hurt like hell and you may have to do it more than once to empty the vial."

Brett didn't acknowledge the instructions, and Ilam finished. "This isn't the preferred method, but the mechs know their job and they know where they need to go. It will take them longer to complete the task this way, so be aware that you might awaken in some pain after the sedative wears off."

Ilam finally seemed to realize he was accomplishing nothing. He pushed back from the table and stood. "Just a precaution. As I said, in case you change your mind. If not, well, I'll tell you it's been a pleasure to serve with you and leave it at that."

Then he was gone and Brett was left alone.

26.

If he really wanted to think about it, Brett could have chosen to blame Liston for what he planned to do. Liston had given him the idea. Liston had pointed him in the right direction. Yesterday, he had said *the organism largely eschews the left portion of the brain. Instead, it draws its harvest from the right hemisphere and the pre-frontal cortex specifically. . .The pre-frontal cortex of the right hemisphere stores our autobiographical memories, our mechanisms for accessing emotions, and current theory suggests, our concept of self-definition . It makes us who we are.*

But Brett had let it roll past him then, unheeded because it didn't seem to have any value except as a way to understand the mechanism of the organism. He had gained wisdom during the night, this morning finally seen the possibilities, and now his heart thrummed in his chest. It was a feeling that reminded him of hope, though he couldn't say for certain that was in fact what he felt. It had been too long since he'd felt it to remember.

Brett stood in the bio lab on sublevel four, inside the biological hazard containment bubble where Djen and Micah had pored over the organism's secrets, dissecting its micobacterial menace. He was not wearing an e-suit as the large and red-lettered signs instructed. He hadn't waited for the negative pressure atmospheric systems to cycle before opening the second, secure set of doors. He only briefly paused for the dissipation of the emergency antibacterial vapor which automatically released from the chemical vents because he hadn't followed proper protocols, and that only because the mist had a tendency to be corrosive. He didn't even close the two sets of sliding doors behind him to activate the filtration vents. The biohazard bubble had endlessly redundant precautionary systems. For Brett, the entire idea of precautions seemed somewhat ludicrous in hindsight.

On the pale counter surface in front of him sat an array of diagnostic equipment, a pair of Hamer microscopes with wide knobs for easier use by gloved hands. At the end of the counter was the high, stainless steel tube of the scanning electron microscope's vacuum chamber. The SEM's monitor was on and it displayed a false color image of the organism at extreme magnification. Brett looked at it only long enough to recognize it as one of the pictures Micah had shown them two nights ago.

The work area was littered with crumbs of dirt from the coring samples they'd taken from the thermal vent. There were swaths that were mostly clean, where it looked like one of them, probably Micah, had swept the surface with a forearm. Brett wasn't a biologist, but he could recognize that it would have been unacceptable practice under normal circumstances. As it stood, it was just more evidence of the haste with which they'd conducted the investigations. It was a wonder they'd had any success at all, and Brett had to consider for not the first time that Ilam's contributions had more to do with it than he was admitting.

Ilam had lied to him. Not just about the nanomechs, but for their entire tour, and Brett found that he didn't hold it against him. Ilam wasn't the only one to be harboring secrets.

As he surveyed the work area, he knew the haphazard quality of the research benefited him, what he was looking for. If they had been in less of a hurry, less frazzled, they would have swept the entire biohazard unit, destroyed everything, taken every possible precaution.

Brett was glad they hadn't. This wasn't a necessity, of course. There were other options open to him by which he could achieve the same end, but he was thinking about time and his understanding that he might have precious little of it left.

He saw what he had come for. Beneath the counter, midway between the Hamer scopes was a storage chest with temperature controls. The digital thermometer readout read an interior temp of 37 C. Body temperature. Brett knelt there, opened the door. On the shelf inside sat a black plastic rack which contained four stoppered and labeled test tubes. Written on the labels in Djen's nearly illegible script were words like 'First Core', 'Midlevel Core', 'Magma Chamber Floor'. Each tube was filled a pale blue fluid that was both nutrient rich and light refractive for better resolution under the Hamer scopes. He knew that in the fluid swam invisible bacterial communities. Maybe billions of them in each. A supermassive dose of bacteria saturated out of the soil samples in which they had survived for centuries, maybe millennia.

Brett picked out the four tubes and slid them into his breast pocket where they clattered against the stubby vial of Ilam's nanomech therapy. There were other things he needed from the lab as well, and he wandered about for some time rifling through drawers, opening cabinets, selecting bits and pieces of equipment that appeared useful.

When he had taken all the things he would need, he let himself out the door and sealed it closed behind him. He made other stops along the way. Some took longer than others, but Brett knew Persia station. He'd probed its crevices thousands of times, knew its secret places. His access carried him anywhere he cared to go.

He had one last stop to make, and he hurried because he knew time was short. He had begun to sweat in his haste. He could smell himself, and it was unpleasant. He didn't actually recall the last time he'd showered.

He strode down the corridor that divided sublevel five, his heels a click and echo that seemed to push him along. There were speakers at the intersection and he heard the distinctive crackle of static that indicated a system broadcast message. Brett stopped, looked up, waited. Something turned in the pit of his stomach. There were three people awake and alert in all of Persia, and no reason he could think of for a system broadcast that wasn't a bad one.

He was certain this was something he wouldn't want to hear.

"Brett, this is Ilam. I'm in the third level rec room. I need you to meet me here, and I'd suggest you hurry. It looks like we've developed something of a situation."

At first he did not understand what it was about the rec room that would qualify as a situation, but it took only seconds for him to remember. The sick from the medical bay, placed there for safe keeping.

Brett began to run.

The first thing he saw upon entering the rec area was Liston. He found this curious, since it was Ilam who had contacted him. Ilam should have been here, and if both Liston and Ilam were here, then there was no one overseeing the convalescence of the crew in med bay. He paused in the doorway, panting from the run and the climb up two level ladders, on the last of which he'd almost fallen, almost broken his goddamned neck.

His next perception did not illuminate the darkness. Liston lay across the body of a crew member Brett couldn't identify because the doctor had hunched himself over the man's face. Brett had the brief and senseless thought that Liston had decided to go ahead with his own mech implantation, then realized he ought to check on the sick one last time and fallen unconscious from the sedatives sooner than he expected.

But then he moved closer and saw that the angle of Liston's neck was all wrong. The skin stretched too tightly on the left side. The doctor's head lolled against his right shoulder. A bruise as dark as thunderheads had begun to stain the skin just above his coat collar.

Brett looked up, sucked in his breath. It only got worse.

The remaining bodies, lain side by side as though awaiting triage in a field hospital, bent in ugly poses. Limbs stuck out in odd directions from beneath the blankets. Mouths were open, howling without sound. Glassy eyes stared at the ceiling. In places, there was blood, rich and crimson, turning the thick blankets a sodden, blackish color. The figure nearest him, the meteorologist Kritzer, had the shaft of a standing lamp driven through her sternum.

Brett took his eyes away. He scanned the room, and there was Ilam in the corner, except Ilam wasn't looking at him. Ilam focused on the opposite corner, the open space between the arm of the couch and the wall where the lamp which had skewered Kritzer had once stood.

In the corner stood Ritter.

He seemed to sway, buffeted side to side by a wind Brett could not feel. His eyes were open but unseeing, his lips parted and his jaw slack. Ritter held his arms at his side in a casual pose. To Brett he looked pale, tinted an unhealthy blue that

made him look as dead and staring as the corpses along the floor.

Ilam flicked his eyes toward Brett, but they didn't remain. Ritter drew both of their attention with the irresistible pull of a singularity. Brett returned Ilam's acknowledgement just as briefly. Ilam held a gun in his hand, the snub-nosed firearm Ashburn carried. Probably, Brett thought, the only accessible weapon on the station since Ashburn had flash-welded the munitions cabinet closed.

Brett said, "Ilam?"

"He's been like this since I arrived," Ilam said. "Liston came down about an hour ago to perform some routine examinations on the patients. After forty-five minutes, I grew concerned and came to see if he needed assistance. I found him the way you see him. His body is still warm."

Ilam waved the gun vaguely. "I saw that Ritter wasn't doing anything particularly threatening at the moment, so I procured this from the security office and locked down the med bay. Then I paged you. I didn't want to do anything that might be construed as rash without your approval."

"Ritter did this?" He had to ask. He couldn't imagine it.

"Look at his hands. There's blood under his fingernails."

Ilam's tone was sarcastic, flat. Who else would it have been, if not Ritter? Everyone else in the station was either sedated or dead. Except Brett, of course, who had been wandering the levels, who wouldn't accept the mech treatment, whose sanity might become suspect at any time from Ilam's perspective.

"He was comatose," Brett said, trying to make sense of it. "Could this be related to the therapy? Maybe it made him crazy."

Ilam gestured in Ritter's direction. "Look at him, Brett. That isn't a man who has recovered."

"What's wrong with him?"

"Spontaneous emergence from the coma, I think. This group wasn't sedated. Liston and I didn't see the point."

"I don't think I see your current point."

"It's possible that the older, more instinctual portions of the brain awakened without the corollary awakening of the higher brain. It would be highly unlikely, but we don't have much against which we could reference the current developmental state of his mind. The mechs are rewriting his neural topography. The organism is entrenching itself. It becomes feasible that he could operate with a mind something less developed than a modern human's."

Brett furrowed his brow. "That doesn't explain why he killed them all. Even if the reptilian cortices revived first without the benefit of the higher brain for guidance, he would have been more likely to run than fight."

Unless he woke hungry, Brett thought, but didn't say it. He was thinking aloud, that was all. Trying to make sense out of something for which he had no real answers.

"I didn't say the emergence was natural," Ilam said. Left to think about it, Brett also wouldn't have said it. "What would you like to do?"

"How long has he been like that?"

"Since I arrived the first time. If it weren't for the fact that he's standing, I would have guessed that he's receded into the coma again."

"Is there any way to evaluate the progress of the therapy? Maybe this was a side effect."

Ilam shook his head. "Not without getting closer. You can feel free to examine him if you'd like. I'll stand back here and just point the gun at him if it's the same to you."

"If it isn't the therapy and it isn't some vestigial evolutionary reaction to premature waking from the coma, what is it?" Ilam didn't answer him, and he didn't need to. They already knew the answer. "Has he said anything? Done anything but stand there?"

"I haven't honestly made much of an effort to communicate. I was waiting for you, Commander."

Brett understood the hint. He said, "All right, cover me so I can get closer."

"You're covered. Just try to stay out from that line between the gun barrel and the lunatic scientist, and you'll be fine."

Brett took a wide step around the line of corpses. There was a path between them and the furniture they had pushed back to make room for the crew the evening before. He swept his attention between Ilam on his right and Ritter in the corner to his left. He moved slowly, tried to appear unthreatening. When he reached a point about a meter from where Ritter stood, he stopped. He glanced to Ilam again, just as Ilam tightened his grip on the gun. Brett saw that his knuckles were white.

He turned away, sidled a little nearer until he was certain he stood in Ritter's field of vision. Ritter made no perceptible response to his arrival. Brett cleared his throat.

"Ritter, can you hear me?"

No action but the stare. He might have blinked, but Brett wasn't sure.

Louder, he thought.

"Ritter, this is Commander Brett. Can you hear me? Are you there?"

For an interminable moment, there was nothing. Then Ritter began to scream.

Brett leapt back, unnerved by the abrupt change, tried to cover his ears. His feet tangled in an obstruction behind him. Too late, he flailed his arms to keep his balance, realized it was the feet of one of the dead he had tripped over. Brett landed hard on his back, sprawling. The body that broke his fall made a noise like a gasp, and he shouted.

"I'm going to fire," Ilam said, calm and hard.

Brett lay still. "Wait."

The scream continued. It rose from Ritter's wide-hung mouth, a sort of mewling noise. It was forlorn, anguished, ancient. A sound never before made by a human throat, a human voice.

Brett sat up, then levered himself to his feet. He told Ilam again to wait, though it was unnecessary. There was more than the scream now. Another sound like chaotic whispers interlaced Ritter's non-voice. Unseen speakers muttered and gnashed their teeth together, lifted their cacophony in a vibratory hum.

What is it? Brett thought, but he found no answer. He drifted toward Ritter, thrust his head forward to hear words that seemed garbled by echo. With each step, the sound grew louder, more distinct. He edged nearer, close enough that he could smell Ritter's unwashed body, taste the dank corruption from his breath. What had once been Ritter had become repulsive, but Brett went on.

Without warning, the gates of heaven opened, a storm burst into his mind, and he froze.

What he saw at first was simply a smear of color, a world of unnumbered billions of atoms, spiraling molecules, multihued latticeworks of matter. Much of it was gray, but even the blandest gray shone with shades and illuminations, opalescence that was not any color he had ever known. Then there were wide swatches of crimson and emerald, gold and aquamarine.

With a jerk, he drew himself back. Distance fractured his perception, re-correlated his senses. He plunged away from a precipice that was both vast and submicroscopic. Brett felt that he blinked. His vision cleared. He looked out of eyes that were not his upon an alien landscape he could not name. But this was his body. He knew it by the hum and sway of his long and supple limbs, the patter-thump of his heart. He looked down the slender and willowy length of his torso. It was his clothes that he wore, silken and shimmering and warm in the light of the bright yellow sun.

About him was water and vales rolling with hills and grass as soft as kittens. There were trees, tall and thin with leathery, scented leaves. In the distance, a fog shrouded city. Amber and glass that sparkled where the sun struck. Beams of strong and dusky bedrock woven with lavender steel. Beyond that naked mountains that climbed feet to shoulder into the clouds until their snow-capped peaks vanished from sight.

The wind blew and the scent in his nostrils was that of growing things and warm soil, but beneath that, decay, corruption. And he knew it wasn't mist that shrouded the city, but smoke. The smoke of fires. The stench of burning.

He felt the despair, and at the same instant a mad, rushing kind of glee, as though it was a wonder he had wrought, but could not recall. He ran the slopes of the hills, up to rounded tops, then down again. His bare feet sprang up from the ground and he raced on, tireless, laughing, free. When his breath grew short, he ran faster. The blood pounded in his head, squeezed circles of explosive darkness across his eyes. He ran until his heart would shatter, then ran on.

And at the end, he spread his arms out wide and lowered his head and leapt up high. The ground vanished beneath him, and below was a vast plain, streaked with rivers. The valley of an idyll viewed from a mountain height. He watched his feet leave the ledge. He folded his body into a dive, and if he still laughed as he plunged, he could not hear it. The rush of wind blinded his eyes and deafened

his ears.

He thought he flew, but knew it was illusion. It was fantasy.

And then it was not. The image shifted before him and he peered out beneath a harsh and glaring light into a world that was bleak. Everything was metal and glass, dingy in the way all well-lived places are dingy. A worn space, a weary space. Before him stood a creature, dwarfish in his proportions. His skin was coarse and pale, his body broad, his hands small, his legs stunted, knobbish, ugly. A thick boned thing who stood near, in a strange and hostile place. More of its type lay on the floor, bundled beneath scratchy linen that was blotched with red running to black. The thing had drawn close enough to emanate menace.

It was familiar, but known in a way he couldn't remember. His skull thumped when he tried, so he didn't extend the effort. It was better this way, to live with the hum and flow, the billowing breath of memory which whispered in his thoughts. It embraced him, and from nowhere, he smelled butter and baking. The crisp brown crust of his mother's apple cobbler cooling on the table. With ice cream and the glass dessert dishes that made that noise, that *tink!* when he rapped the side with his fork. He sat up in his bed from where he had lain on a wet and dreary Saturday, reading the latest Sol Bergeron adventure. He still wore his pajamas, the black and red checkered flannels with the feet in them, the ones his brother said were for babies and girls, which was probably true enough, but he wasn't ready yet, not just yet, to set them aside.

He left the book where it lay and crept out his door and down the stairs, careful past his father's office door because he'd been told to hold his tongue and keep it down--with Armen adding the ubiquitous *or else* that was a constant theme of his life. Dad was home but he was working, consumed with aquifers and water tables and drainage for the weekend.

And he'd been good. All morning and half the afternoon, quiet as a mouse, as a louse, as a grouse, though he wasn't exactly certain what that might be. But very good, nonetheless, and if Armen was over at Sebree's house and little Niki still down for her nap, there was a chance, faint but apple-delicious, that mom would be in the kitchen and in her best of moods and he would have an early treat. A rare occurrence, but one he had known once, he thought, and if not himself, then Armen had and told him it was possible at least. Though he had to admit if he thought about it that Armen wasn't always to be strictly believed.

But that also wasn't right, wasn't true. Again the scene melted, and Brett stumbled into a universe of darkness, gray and black, mottled with lightning strikes of violet conflagration. This was also himself, and a place that he knew. An oasis in a vast and blinding wilderness. Here there were others, likenesses, community that shared space at the troughs of goodness. He saw it without eyes, knew it by touch and taste, the vibratory pleasure of those who were near. And he was not a he or a we, but an I of many parts and far-flung coherencies. A mind of one thought but a billion branches acting in concert, and that thought was hunger. They huddled together, pressing side against side, stroking their long filament tips end to end, purring and feeding.

And then the others came.

I sensed them from the edges, felt them for what they were, hideous beasts of monstrous metallic carapace. Rotating teeth like grinding saws and fine, razor arms tipped in steel and blood. They hovered above the troughs, shining swarms of buzz and stab and grappling, rending limbs. They made a noise as they came, a creaking, screeching, rumbling roar that sent quivers through his gelatinous self. The others, the aliens, they killed where they came erasing the sense of what had been, numbing the distant tendrils of understanding, sweeping down from the high places and the slick, winding paths from trough to trough. They touched my distant self with storms of swords and left only devastation and darkness in their wake.

Behind them came more. Row upon row of those that were like but different. These more menacing. Less fierce, but irrevocable, immutable, mindless. They transformed the face of the world. They crumbled the mountains and starved the high springs that fed the troughs, and where they wended nothing that had been remained the same.

I knew pain. Loss and emptiness and outrage.

As suddenly as they had come over him, the flood of images ceased.

Brett felt himself tumbling, plummeting from a height. His stomach turned, the spin of vertigo made him wobble, but he stopped the gyre before he fell.

There were more, he knew. An eternal round of thoughts unremembered, memories untapped, entire lives forgotten. He had been snared in a web of eternity by a mind intent upon showing him all of it. Or not even him, perhaps, but that which was inside him. A mind speaking to itself.

But he remembered the rage, fierce and brilliant, and he understood whether or not the communication had been for him.

He opened his eyes, for a fraction of a second looked at Ritter; their eyes met. Even in the dark and vacuous depths, Brett could see the faint spark. He wasn't alone in his understanding.

Then the shot rang out, a firecracker pop in the enclosed space, and Ritter's head exploded in a maelstrom of blood and bone and alien screams.

Brett ran his hand across his mouth. It came away bloody. Fragments of bone, hair and flesh had lodged in his two day growth of beard. He scrubbed at them with his forearm as Ilam came to stand beside him . Ilam's chest rose and fell rapidly. His breath came in short gasps. Ilam goggled at the body with his mouth open, as though he couldn't believe what he was seeing.

"You killed him," Brett said, without accusation. "Why did you do that?"

"You wouldn't answer me."

It was explanation enough. Brett knew he would have done the same.

"For how long?"

"Two minutes. Perhaps three."

"You look a little shaken. I thought you'd been in the military."

Ilam shrugged. "Never done one like that before. Close up, I mean. With a gun."

Brett turned to him and nodded his approval, so Ilam would know. "It was a good shot."

"Aye."

There wasn't much else to say.

"Are you going to tell me what happened?" Ilam asked.

"What did you see?"

"You tried to talk to him. He began that caterwauling and you went rigid. Both of you, as a matter of fact. I got no reaction from either of you and determined something must be wrong." Ilam hesitated, rolled his eyes from Brett to Ritter's body. "I assumed you required assistance. I was right, wasn't I?"

Brett nodded. "It was them. The organism. Not organisms, plural. Just the one, I understand that now. It doesn't have a concept of individualism, only a corporate identity. I think they only understand their existence as a portion of the greater. .

.flock. Except flock is our word, and for it, the flock is one." What do you mean when you say 'I'? It was difficult to verbalize, and he knew he was doing it badly. "It communicated with itself, I think the same way we communicate between neurons or between brain segments. Whatever is in my brain shared messages with what was in Ritter's."

"What sort of messages?"

"Images. Memories. I saw--no, that isn't right--I experienced some of Ritter's childhood. I experienced the existence of the organism in real-time, as the mechs invaded his brain. That's why he killed them, Ilam. The organism understands what we're doing because it has access to Ritter's experience, maybe to all of our experiences. It seems to understand the source of the invaders, if not the technology. It has no defense against them, and it's angry. This was retaliation for what we're doing to it right now."

Ilam shook his head. "That doesn't make sense, Brett. Why would it kill the host as retaliation?"

"Because it understands its life cycle. It's been dormant for a million years, since the last time, since there were others. It can wait. It has the mechanisms to exist, and it has no individual survival instinct. The corporate mind reflects that if one copy survives, the entire organism survives."

He stopped there and pressed his fingers against his temples. The memory was too fresh, and it was painful to recall. He could still feel it--the confusion, the fear, the numbing sense of loss as parts of the 'I' were eradicated.

"What do you mean there were others? Who?"

"The people of Archae Stoddard. They were like us, Ilam. Not human, no, but people. Organic creatures, technologically advanced, beautiful in some ways. Beautiful the way the planet used to be before the plague."

The plague. The word slipped from his lips without his willing it. He didn't understand it at first. He turned it over like an alien artifact, insensible and completely outside his experience. Then he recalled the desperation, the mad and laughing rush. The plunging, doomed leap of flight off the mountain's edge. It wasn't an outside memory to him. It was his, and he understood things because of it.

Ilam said nothing, and Brett continued.

"We've been baffled by this organism because it doesn't seem to fit any standard categories we have. We assumed--that word again--that even though it was alien, it still had to conform to our definitions of life as we've observed it. It is alive, but it isn't natural. It's a mech."

Ilam opened his mouth, seemed to realize he had nothing to say, and closed it again.

"A completely biological technology. Sophisticated enough to alter its genetic material for dramatic leaps in adaptation. Single generational mutation to promote fitness. It was programmed by the inhabitants of this planet to do many of the same things we design our mechs to do, but it's biological in nature. They wanted it to do what we've encountered. They gave it consciousness, the ability to communicate extrasensorily with itself. Then they willingly accepted the implantation of the organism because it would link their minds, expand their neural matrices. It was a technology that would improve their unity, their knowledge, their entire experience of their world. Their mechs were the dawning of a new age of understanding."

"But something went wrong," Ilam said.

"No. That's just it. Everything went right. Too right. The organism thrived inside them. It linked their consciousness man to man, woman to woman, and it made them wise. Wise, and then insane. They couldn't control the creatures they'd made because they'd given it sentience. They couldn't stop it from generating one massive hive mind out of the entire planet. After a time, they didn't have the will to stop it."

"What killed them, Brett?"

Brett surveyed the memories of devastation with eyes haunted by grief. Grief he had no right to feel. "Some didn't want the implantation. They didn't want to grow beyond the bounds of their understanding, because they believed it made them something other than what they were to do so. They enjoyed the dichotomy of mind and body. Eventually, there was war, and the non-mech faction released a counter bacteria designed to kill the organism. Except it killed more than that. It killed everything. Bacteria destroyed the tall and slender trees. It razed the grass. It devoured every living thing."

"Except the organism. It survived in pieces, here and there. It fed off the detritus of its shattered world and it reproduced, and when the food began to run out, it adapted and found a way to harness the life of the bacteria created to destroy it-- Micah's autotrophs. For several hundred thousand years, they've evolved together, the big steering the small. You understand?"

Ilam nodded slowly. "Then it is sentient."

"It is, but it can't comprehend our non-biological mechs. What it understands is that the world began to change. It has some concept of racial memory, so it recalled what the world had been like before. When it began to be that way again, it revived itself. It recreated the programming for which it had been designed. It has been attempting to complete those functions with us."

"And because we're different than the designers of the original organism, it effects us adversely," Ilam said.

"Not that it exactly did wonders for them, not at the end of the day."

They were silent for a moment. In a quiet voice, Ilam asked, "What did it feel like?"

"Vastness." He didn't know how else to describe it. "I could have been aware of any one of them, any set of them buried anywhere on the planet. The same way, I suppose, I can choose to lift one of my toes, or touch something with my finger. They're everywhere, and any one of them can choose to be anywhere or everywhere at once just by willing it."

That was only part of it. A dozen other words that were close, but not the actuality, came to mind. Harmony. Unity. Pleasure. Freedom. All of them abstracts that didn't adequately cover the things he felt when he delved into the memory he had stolen.

He remembered the hum of the organism, the sort of fluted, purring song that had filled the black wilderness. It was there, all of those words, all of those concepts, thrilling through the song it had sung. A song as old as humanity. A song as ancient as the windblown face of Archae Stoddard.

"You knew something like this would happen," Brett said.

But Ilam frowned and shook his head. "I suspected the organism was sentient. I've told you the reasons. I thought, based on that, it would attempt to find a way to communicate. But I didn't anticipate any of this, or I wouldn't have spoken to you so vaguely. There's much in what you've said that would have been of use to us had we known it earlier. We spent so long just trying to understand the damned thing."

Grief, Brett thought suddenly. That was enfolded in his memory also. Grief at the loss of a part of himself, part of the organism as the nanomechs swept in with their slicing, grinding arms to reave from him a piece of his soul. The feeling clung to him, left him empty and tired.

He said, "That's why you pressed me so hard from the beginning. You knew it had something to say that might be valuable to us."

"That isn't actually the reason at all."

Brett gazed at him, uncomprehending.

"I'd been watching you. I had researched your history. I knew, Markus, that when the final push came, if we could devise a therapy to counteract the organism, you would refuse it if it meant choosing between saving your life and leaving Emily behind. The sentience of Cassandra, Emily as Cassandra, and the sentience of the organism are the same issue. The organism as you describe it is part of a higher mind. I'd anticipated that on the evidence of the coordinated attacks on our Engines and our installations. Separate any of those agents from the corporate body, and they cease to function. They cease to live."

"And you think Emily without Cassandra can't survive."

"I do not. And if she did, it would be short lived and she would almost certainly be insane. The system has been engineered to deny her freedom. They were thorough, Markus. The programmers did extensive work to keep the biological component from ever functioning on an awareness level again. They knew what they were doing to her, and they made damned sure she would never come to understand it for herself."

"You don't have the evidence to support that."

"And you don't have any evidence at all except fantasy to support your belief

that she is still conscious. Listen to me, the organism is sentient, but not on a component by component basis. You said so, it isn't individuated. It's consciousness resides in the correlation, the coherence of communicating units. Separate a unit from the overmind and it would cease to function.

"Don't you see? It is the same model of consciousness. The individual doesn't retain selfhood outside the context of the environment. It has no identity. There is no self-definition except as a piece of the greater whole. It is completely irrational for you to accept the validity of the one without accepting the other."

Brett scowled. "We've had the rest of this conversation already. Leave it at that."

Ilam raised his arms, tried to go on. "Brett--"

"I understand," he barked. He didn't allow himself to become angry, but he was finished. He wasn't going to argue about it again. "I see what you were trying to do. I appreciate the gesture, Ilam. But we disagree here. We disagree fundamentally. That's the last I'll say about it."

Ilam seemed to accept it as the final word. He scanned the rec area, his eyes lingering over the bodies of men and women they had known. He tucked the gun away in a pocket of his shipsuit.

"We should do something about them," he said.

"We'll lay Liston out, and Ritter as well. Cover them with blankets. That will be good enough." It was hard to say something so callous, like swallowing stones. "When you lead the others down to the Escape Module, don't come this way."

He thought about it a few moments more, then said, "Belay that. I'll clean up here. You take your gun and seal yourself in the med bay with the others. The organism knows what we've done, and it might try something like it did with Ritter again. The sedatives the others took should keep them immobile until our mechs finish the job, but I don't want to take any chances. Can you handle the rest without Liston?"

"Yes."

"What about your own protocol?"

"I don't need it."

Brett understood. "Call me if you need anything. Use the system broadcast message like you did the last time. The moment you're ready, pack them up and get them to the module. Don't come looking for me. I mean that. We've all said our good-byes, and I may not be in any condition worth arguing with by then. If I try to impede you in any way--"

"I have the gun," Ilam finished.

"Don't hesitate."

"No."

Brett knew he wouldn't, and it made him feel a little better.

"After you seal the doors to the Escape Module, hose the interior with the decon agents. That's what they're there for."

"I know that."

"Don't remove their mechs until after you're airborne. We can't have them re-infecting the crew."

"The mechs will begin to dissolve spontaneously two weeks after the last contact with any incident of the organism. They're programmed that way." Ilam grinned. "Do you want to command this escape or are you going to let me do it?"

Brett stopped himself and smiled in return. "You're right. You can handle this."

"Tell me I'm a good boy, pat me on the head and send me off. That's the way mum used to do it."

They shook hands for the last time.

Brett said, "Get out of here."

"This is the part where I'm supposed to tell you what a pleasure it's been to serve with you."

"You already did that."

Ilan winced. "Rats. I did, didn't I."

27.

It would have to be done very carefully, this last step. Brett knew this. In his office, on a shelf where it was readily available, he had a book that ran to better than a thousand pages of schematics, diagrams, logical arguments, all aimed at not only showing him how to do this unthinkable thing, but why it had to be done in this precise order without any omissions. The major point which the writers of the book were trying to impress upon him and anyone else authorized to read it was simply that the things the book had to say should never be put into practice. Never.

Except station commanders were trained to contend with all the various and sundry catastrophes that could override that *never* condition. That had been part of his training for this job. He'd had to memorize more or less the entire contents of the manual. He had to be able to perform the unthinkable without hesitation or error should the need arise.

Brett had no doubt that 'need' was the correct word. He'd never required anything as deeply or strongly in his entire life.

He stood in the familiar darkness, shivered at the chill he knew from so much experience. Varicolored lights danced and flickered along Cassandra's smooth, matte skin. She knew he was present. She'd forced him to log himself into the system as soon as he entered the door.

Cassandra could do many things. She could analyze binary-converted sensory data. She could tabulate infinite series of calculations without tedium. She could identify the crew by brain wave or heartbeat or voice recognition. She had possibly developed the capacity of limited consciousness.

But she couldn't see into the human heart, the human soul, and though she had been a party to the investigation into the organism, though she had undoubtedly monitored the things that had gone on, the things Brett had said and done in the last few hours, she had no idea what he was thinking now. There were some things she was not yet equipped to understand, and the native treachery of her human creators was, he both suspected and hoped, one of them.

She didn't know she had blithely, obediently left out the latchkey for a murderer.

In full sight of her, Brett finished his preparations. At his back were a pair of wide-reflector, five hundred watt halogen lamps mounted on extendable tripods. He'd dragged a small folding table in from the nearest storage room, and a reasonably comfortable canvas and metal fram camp chair to go with it. Onto its surface, he'd begun to empty his pockets. The laser scalpel on the left side, where its flat edge wouldn't allow it to roll off the table. Beside that, the four test tubes from the bio lab. Next to them was the mech vial Ilam had given him, the one which bore his name. There were other items. A pair of syringes. A pair of auto-injectors, though he expected to need just one. A portable bio scanner. Other things of more or less importance. Brett hoped he had planned for all possible contingencies.

He had been as careful as he could, even in those minutes during which he had enlisted Cassandra's assistance. He didn't know if she could suspect him, and then like now, though he had accessed his usual user profile, he had verbally disabled the dynamic learning environment, just to assure himself that she couldn't make the necessary intuitive leaps.

Brett skirted the edge of his workstation and faced her. In the space of a breath, he reviewed the series of commands he would have to give. At the last, he smiled, tried to twist his face into an expression that was reassuring. It was just as well that Cassandra didn't have the hardware that would have enabled her to read it.

"Cassandra," he said.

"Yes, Markus."

"Perform a diagnostic on all autonomic station essential systems."

She checked them off for him as she ran the tests. Backup life support on-line. Backup electricity and lighting systems on-line. Backup atmospheric controls on-line. The list went on, all of the emergency, hardwired coding in the event of massive computer system failure.

As she performed her instructions, it occurred to Brett that Emily looked distant today. Her eyes seemed clouded; her normally erect figure slumped; her flesh, gray. As though she knows, Brett thought. She knows, but Cassandra doesn't. He, in turn, didn't know if that was good news. Was she helping him, anticipating salvation, or trying desperately to transmit a warning message

Cassandra had no mechanism to hear.

Because he couldn't know what she was thinking, he wished the process was not so drawn out, so precise. He wished he could just tell her, *shut yourself down*, and have that be the end of it. But it had been made much more difficult than that, no doubt intentionally.

"Initiate transfer of autonomic systems to secondary monitor and command devices. Signify each component transfer with audible signal and code description."

Outside the dynamic learning environment, Cassandra didn't question his order. She simply did as she was told.

"Atmospheric control transferred to secondary remote system. Diagnostic of remote system completed. Equipment function normal. Stored parameters recalibrated. Remote system atmospheric monitor and command protocol activated."

It took time, time he didn't think he had. This all had to be scheduled so delicately. Each step done in the proper time, neither too early, nor too late, but this first one--shutting Cassandra off--had to be done first. Everything else depended upon it. Brett tried to be patient, failed miserably, but resisted the urge to pace. He gave his verbal assent to each step when prompted, followed by his passcode as a security measure. Cassandra didn't like releasing control of essential systems to the devices she usually managed. She made the process as difficult as possible, ostensibly to keep a nonattentive station commander from accidentally shutting down all life support systems without transferring those functions to other units.

When she had completed the process with all twenty-five modules, she told him she was done and settled into a silence that struck Brett as something like sulking, though he knew she felt no such thing--did not, in fact, have the capacity to even emulate it.

He was just projecting, and he knew it. The truth was that he didn't have to worry about Cassandra's obedience, or Cassandra's timetable. The two of them had performed this transition test hundreds of times. Once a week relative station time for the last five years, in fact, because it was procedure to do so. It wasn't Cassandra that concerned him.

It was him.

Because he had noticed in the scant hours since the incident with Ritter that he was losing himself, as if the exchange between Ritter's mind and his own had energized the latent efforts of his own infestation. Left alone, his attention wandered. In the mech engineering lab, he'd spent better than fifteen minutes recalling in vivid detail the first argument he and Emily had ever had, the one that followed his half-joking, callous comment about her new pair of shoes. He had looked up from the workstation and found tears on his cheeks, and found, as well, subsequent to that first time that there were more memories beckoning to him. Their voices called to him in whispers, pleasant murmurs, a precious rebirth of experience. It took all of his concentration to keep them away, and the effort filled him with pain.

Focus, he reminded himself. *Focus.*

He proceeded with the checklist. "Cassandra, shut down remote sensing devices on all levels."

"Sensor devices terminated."

"Shutdown external communications ports."

"External communication ports terminated."

"Cancel satellite relay commands."

So he continued, disconnecting all of the remote devices with their own internal smartchips. Each one of those pieces of equipment would raise an annoying, warbling whine if they detected a lost signal from Cassandra.

Finally, "Test local power supply."

This was her own emergency battery package, continually juiced in the event of a power failure, able to sustain her primary operations for up to eighteen hours. This was also the step at which she would begin her objections, though currently, she only confirmed the batteries were functional.

Brett paused for a bare second, rehearsed the checklist in his mind to be certain he hadn't omitted any of the critical steps. He could think of nothing he had

missed.

He said, "Disconnect from main power grid."

"Cassandra System detects no failure in main power grid. Please advise on disconnection command."

"There is no failure. Comply with the order as instructed."

"Please present current administrative level passcode."

Brett gave it to her. She clicked for several seconds over, he assumed, the insensibility of the command.

She said, "Disconnection from main power grid complete. Local power supply performing within normal limits."

He cleared his throat. So far, there had been no problems, not even the expected ones. He wondered if she had always been this compliant, if he had made her more difficult by activating the dynamic learning environment and filtering all of her processes through it. He couldn't remember a time when she had simply done as she was told, when she wasn't cantankerous as a rule.

"Prepare for complete system refresh and shutdown procedure."

"Warning: system refresh and shutdown procedure is not recommended at this time. Please present user identification and passcode to proceed."

He supplied his credentials again. "Ignore standard warning set. Initiate refresh and shutdown procedure."

"Commander Brett, Markus Jasper, please confirm order to initiate refresh and shutdown procedure for addition to event log."

That was a not so discreet threat that Cassandra, either right before terminating her operations or immediately upon regaining power, would beam a message to EFTC headquarters, Palimpsest Industries and any other managing organization who might be concerned stating that some idiot with his name and passcodes had just shut down the single most vital piece of equipment in a multi-trillion dollar deep space station. Under the circumstances, Brett wasn't concerned about her

tantrums or her reports.

He said it for the third time. "Initiate system refresh and shutdown procedure."

Cassandra clattered at him. The left bank of lights spat a frenetic amber and red pattern. In the tight enclosure of the room, Cassandra's ambient rumble became an arthritic crackle and hum.

"Please specify component termination sequence."

This also had to be done in a precise and unforgiving order. If he neglected one step, Cassandra would wrest control and make him start all over again. It was the last safeguard against unauthorized shutdown of the unit. The correct sequence was designed to both protect the station and Cassandra's sensitive hardware components against damage, and it wasn't published in any of the manuals, not even the thousand page exhaustive reference paperweight in his office. In theory, only the station commander was given the sequence. Only he could shut down the Cassandra system, and for the sake of both his job and a prosecution free future, he'd better have a damned good reason.

It occurred to him that Ilam probably knew the sequence, too. That would have been nice to know on the many evenings he'd lain in bed waiting to fall asleep and rehearsed the list in his mind, just so he wouldn't forget, and at the same time both hoping and anticipating that he would never need to use it.

He used it now.

"Begin component termination sequence on my mark." Brett tried not to think about what he was doing, about the vast and variable potential for disaster. If something went wrong, it could take thirty minutes or more to get her reconnected and processing again. "Mark. Shutdown memory cell bank one through seven. Shutdown memory cell bank eight through fourteen. Shutdown reserve memory cell bank fifteen through twenty eight."

He went on for several minutes, slowly but methodically dismantling the Cassandra system. Indicator lights flicked from green to amber to flat and glaring red, then winked dark. Sometimes one, sometimes an entire row, depending upon the importance of the component. After the memory cells had been powered down and secured against damage, the major peripherals went: the last set of sensors, the analysis ports, the power to the external sensor array. Near

the end of this list, Brett approached the front of the machine and released the latch beneath the monitor on her right side. He removed a touchpad on a sliding drawer, then terminated the last of the peripherals, the verbal command recognition port.

The next part was easier, but more critical. It involved all the major processing components, and he double-, then triple-checked each entry as he typed it before transmitting his command. His hands were steady; he didn't make any mistakes.

Basic computational board.

Diagnostic segment.

Analysis board.

Central Logic Comprehension Block.

He dismantled Cassandra until there was nothing left of her. With the last command, the termination of the Master Processing Board and Emergency Parallel Processor, Cassandra seemed to stutter. All of the boards, all of the indicators, every light she possessed glowed a bright and vibrant crimson, held it like a shriek of outrage or a dying breath, then faded. The monitor in front of Brett went blank.

He stood alone in the silence, the thunderous, aching silence after the fans had stopped and the blowers ceased. He could hear his own breathing. He could smell the machine, her fragrance an odor of ozone and burnt electrons. In the absence of Cassandra's internal lighting, the capsule containing Emily had gone dark. Emily herself was a shadow behind glass, as featureless and pale as a ghoul.

Brett had never been so completely alone in his entire life.

He walked to the back of the room and flipped the switches on the halogen lamps. The glare was fierce and immediate, and the buzz of their electricity drove away the silence. That seemed to make it better. He felt less isolated, and he could see Emily clearly, though the lights did not make her appear any less pale. He checked his watch, realized it could still be early yet. He had to wait for the next stage, and then he would have to be quick from start to finish.

Brett settled into the canvas seat of the camp chair. He propped his feet on the table, careful not to knock over any of the fine instruments he'd brought with him. Careful especially of the four test tubes. He'd noticed in the faint light just after shutting Cassandra down that the tubes had begun to shine with a faint opalescence. He knew what that meant--the organisms in the samples had found reasonable food in their nutrient bath. They'd begun to reproduce. He was sure that if he put his hand against the glass, if he held the test tubes in his fist, he'd feel them vibrating. It would be a hot and snapping vibration, the tongue against teeth feeling of stabbing your finger into a light socket.

Because he knew it, he didn't check. He didn't want it to distract him.

Brett reached into the breast pocket of his shipsuit, the opposite pocket from the one he'd carried the tubes in, and removed a pair of sandwiches he'd thrown together in the commissary as the last of his day's errands. He ate slowly, but greedily, savoring the food for the energy it would provide him later, when he was sure to need it most.

In the hospital, he had been allowed to see Emily only once. There might have been more visits, but her parents, even unnotified until after the first tandem of major surgeries, arrived too quickly, her parents who were the only actual family. He was relegated to the role of *friend* and had no rights. Four years had earned him nothing, not to people who bore blame in their hearts. Not to a hospital staff who could only tell him privately that they understood, who passed by him in the waiting rooms and lunch line and would sometimes pat him on the shoulder, sometimes whisper the secret language of medicine in his ear. They had regulations which must be obeyed.

But there had been that one time, in the immediate hours after the accident while her parents sailed the upper atmosphere toward Atlanta, and the doctors needed someone to speak to, someone to explain what had been done to this precious, fragile creature.

They had wrapped her head in linen gauze. They had plugged her body into monitors and intravenous machines, squawkboxes and readouts. A whole collection of medical marvels running on a meter that demanded something like a thousand dollars an hour. Men came in to check, wrote down numbers, applied them to the billing statement; their charge for supplying the spark of life.

Her face was bruised and swollen. The entire left side looked as though she was already dead, cold and blue with the blood settling against the flesh. The track of stitches wound down from the hairline obscured by her bandages, across her right temple, down to the curve of her jaw. She had been fortunate, he was told, that she didn't lose the ear. He had thought about that at the time, as the doctor said it to him, and he was standing beside her bed looking at the flat and empty space where her legs should have been. The expanse of sheet and fluffy white blanket was as flat and clean as an Indiana hayfield under six inches of new snow. He stared at that space, that not-legs emptiness for an hour, puzzling at its complete and utter wrongness. Trying to wrap his mind around the sense it did not make.

And he had asked himself the usual questions, the ones that shamed him, the ones he ultimately refused to answer. Can I love a woman in this condition? If she is saved, if she is all well except for the leglessness, can I still love her? Can I love her without legs and without memory? Can I love her without legs, memory, or the ability to control her bladder?

Each question was a small step up the massive slope, a tacked-on burden. He could not encompass the totality of the devastation, so he purchased it in bits and pieces, pretending he was finding the line beyond which it would be too much for him. He told himself that there was no line. If she remained just this way forever, he would still love her, he would still remain. He did not know then if he said those things to keep his pride or because he truly meant them. They were questions impossible to answer, because he still had hope. He believed in the miracle of medicine, properly applied. Churches and news programs and the magazines in the waiting areas were full of the wonderful, awful tragedies made right. They told him that the miraculous was commonplace.

In those first hours, he had promised himself that he would remain here, by her bedside, fighting the good fight with her for as long as it took. He believed enough for both of them. He believed because his entire life had been shattered in the course of seconds, its ruin written repeatedly over the space of four hours. He could not imagine that it would take longer to repair. In the back of his mind was the image of a bright dawning tomorrow when Emily would open her eyes and smile and she would be well. They would be well. Life would proceed along the trajectory it had used yesterday and the day before. This was a bad day, a terrible, tragic, stupid day, but it was just one. It couldn't change the course of a lifetime. He didn't possess the faculties to imagine such a thing.

He didn't know then that he was wasting his time. Not in terms of planning a fruitless future, though that was no less true. Actually wasting time, those precious few minutes, the last minutes he would be able to touch her freely, without mitigation. He was afraid to touch her because of her wounds, though the IV drip contained medication potent enough that she never woke. She couldn't feel her pain, let alone what would have been his gentleness.

Instead, he stared at her, then pulled up a chair beside her bed, then read a magazine while he waited for a doctor to appear with news. Eventually he watched television and fell asleep until the evening nurse roused him out to the waiting area. He still hadn't understood. He'd accepted it all as though they still had eternity before them.

Later, during the interminable stretch when he was bathing in the second floor bathroom sink, buying cheap clothes off the rack at the closest department store, ravaging their savings account to keep up on the mortgage since they both had in effect lost their jobs--doing anything he could do to physically occupy a space

close to her--he had no contact. Nothing but whispers and after hour chats with nurses who pitied him. No, he couldn't see her, but he would like to know that the scans had turned up no significant brain damage, which was good news given the original assessment. I'm sorry, the surgery wasn't successful. The doctor doesn't think she'll ever come out of the coma, but that's just in the chart. He hasn't even told her parents yet.

The last one. . .the doctor has been contacted by some men, government men, who have taken an interest in this case and one or two other inmedicable coma victims up on the floor. I don't know what it means, but it might be important.

He tried to speak to her parents. Twice. The first was shouting and jabbing fingers and red, stretched faced. The second was flat, unemotional, three hours too late. She's been moved. They've done all they could do for her. The decision has been made. Their hate had cooled, but the blame was still there, as cool and hard as iron. Then they were gone, back to upstate New York and genteel retirement, and he didn't know what to do. Didn't even know what to believe.

Go home, the security guard said to him later that night. Go home. There's nothing left for you here. It wasn't cruelty, though he had taken it that way. Two days later the man called him, risking his own job and his own future. The security guard who was also an Atlanta cop who liked to ask questions, who liked to dig around, who felt sorry for him and handed over the keys to the kingdom. Palimpsest Industries.

The last thing he did before making the jump with Emily to Archae Stoddard was to catch a shuttle to Atlanta. He found the security guard cum police officer and bought him a drink in a cheap Irish bar near the neighborhood where he and Emily had once lived.

Bought him several, in fact.

28.

"Brett."

He snapped forward, lost his balance. At some point, his legs had fallen asleep. His sudden movement jerked them to the side. They thumped against the floor like wooden blocks, and only their numb weight kept him from toppling over backward.

He sucked in a breath, blinked at his surroundings. Oriented.

He'd fallen asleep. He'd been dreaming, dreaming about Emily. That was what he told himself.

"Brett."

The voice was more insistent this time. Ilam's voice, from the intercom in the wall behind him. The tinny speaker made him sound harsh, or maybe it was just impatience. He didn't know how long Ilam had been calling, though if it was very long, he could imagine what he was thinking. He was probably making certain the gun was still loaded. Brett tried to hurry, but the pins and needles had started, and all he could manage was a crab-like hobble.

Brett stabbed the button.

"I'm here."

"About bloody time."

"Sorry. I was away from the comm." Brett looked at his watch and cursed. He'd slept for almost three hours. "What's your news?"

"I've got two awake and the rest are stirring. We should be on our way in the next half hour, I think, whether the others are fully up and moving or not. I performed some preliminary scans on the first two, and they look clean, so the procedure worked. I'd like Cassandra to confirm the results, but I can't seem to get her to answer."

Brett grimaced. It was something he should have considered. "I took Cassandra off line."

If Ilam wondered why, he didn't ask. Brett assumed he was smart enough to put the pieces together.

"I think my examination has been thorough enough. That, and these idiots keep asking me to repeat the bloody date." Ilam laughed. "We've only got five. Two of them didn't make it. Same reaction as Micah."

Djen. His heart made a thudding noise in his ears. "Who?"

"Garaby and Reece." Ilam knew what he was thinking. He lowered his voice. "She's fine, Markus. First one out of it, just like Liston promised. Very bright eyed and curious as well, wondering what the hell exactly it was she agreed to and why she would do such a thing."

"Have you told her?"

"I piped the entire file to the Escape Module. She and the others will have ample time to review it for the next three months while we're waiting for pickup. I hope, by the way, that in your system tests on the module you thought to include a healthy number of in-flight movies for our entertainment."

"You're entirely too fixated with television, you realize that."

"A man has to have his vices." Ilam paused, not bothering to chuckle at his own joke. "And what about you, Commander? How are you?"

Brett thought about the dream he'd just had, the way his attention and his thoughts wandered whenever he stopped concentrating. The way, in fact, he couldn't even convince himself anymore that what he was about to do was sane, only that it was what must be done.

"The natives are restless," he said.

"What do you want us to do?"

"Exactly what we planned. Gather the other survivors when you're ready." All five of them. *Five!* "Get to the Love bug and take off. Everything else has been done for you."

Ilam agreed. "I'll contact you from the comm in the launch area just before we leave."

"There's no need for that."

"I'll do it anyway, so you might as well make it an official order."

"That's fine."

There was a commotion in the background. Brett heard someone shouting.

Ilam said, "Well, that's Ashburn waking himself up. I'm going to have to run, I'm afraid. Apparently someone wasn't in the best of moods during their last imaging. Ilam out."

Brett didn't acknowledge him. He closed the channel and turned to face Cassandra. It took him several seconds to remember what he needed to do next. Time was against him, he knew that, but he didn't recall exactly why that was anymore. This forgetting bothered him, but not in any concrete way. He knew it should have bothered him more, but couldn't quite seem to care. He tried to reconstruct his activities to make himself remember. He'd stopped after shutting Cassandra down, sat down to eat and take a nap. No, the nap had been unintentional, but he'd obviously been waiting. He had to wait until the last possible minute. That was as far as he could get.

He shrugged and began to retrieve his tools. It would come to him. Of that much, he was certain.

Brett worked at the capsule's plastisheen shielding with the laser scalpel set to its most intense beam. He had expected it to slice the material cleanly, quickly. It did neither. It warmed the surface to a dull orange glow, rounded the edges made by his cutting like melted wax. In twenty minutes of work, he managed only the top to bottom cut down the center of the capsule's front plate. The nutrient fluid did not wash over his feet as he expected, and he had to probe with his fingertips to determine the reason. Beyond the hard outer shell was another layer of plastisheen, thinner, warm to the touch and pliable against his probing.

The scalpel gave him only the first vertical slash, then it sputtered, overheated. It grew hot in his hands, and he had to drop it. It rolled to a stop against the wall, smoking from the tip where the beam should exit.

What he'd needed, he realized, hadn't been the scalpel at all, but a goddamned laser torch. He didn't have one, of course, and by his watch, he couldn't burn the time to track one down. Brett cursed loudly and struck the face of the capsule with his hand.

He mulled for several seconds, mentally examining the station inventory for something useful, something close.

At last, he used what he had handy to finish the job. He stripped the canvas from the camp chair, broke the bolts that held it together by smashing it against the floor. The legs were made of thin steel, but it was strong enough, he hoped, to substitute as a pry bar.

He worked quickly after that, wedging the bar into the gap between the pieces of plastisheen. The walls of the capsule buckled where he threw his weight against them. The gash widened perhaps a dozen centimeters, enough that he couldn't get any more leverage on it, so he attacked the top and bottom where the plastisheen walls bolted into the capsule's metal caps.

He began to sweat. His breathing became ragged, and with each strain and jerk of his arms, he grunted. It was a fierce and constant stream of cries, howls, mumbled profanities. Each bolt was an obstacle, and he leapt at them with leopard ferocity.

When the bolts had been sheared or broken along both the top and bottom, he

abandoned the tool and used only his hands. He gripped both sides of the split capsule and tried to pull them apart. They squealed, but didn't break. He switched to one side, hooking his fingers into the gap, clutching the edges still warm from the laser's heat and bracing his feet against Cassandra's solid carapace. He pulled as hard as he could, pulled until he could hear his blood thudding in his temples. The entire side cracked and tore free. Brett spilled to the ground, panting and triumphant, still gripping the piece he had broken.

Yes!

He tossed the fragment away and climbed to his feet. The inner lining held firm. He was surprised that it did not sag from the weight of the fluid given its flexibility. He approached the capsule and put his hands against the barrier. The fluid inside was warm, as warm as comfortable bath water. Bubbles of oxygen trickled upward from the point where he touched it.

Brett looked at Emily. So close. He hadn't been so close to her, so near to having her in his arms in years. He suppressed a tremble. He could almost smell her, imagine or remember the touch of her skin against his. But Emily didn't return his stare. Her eyes aimed above him, beyond him. Her chin did not turn in his direction.

But it would. Before long, it would. He had the irrational urge to crow.

Brett pulled a short folding knife from his trouser pocket. He opened the blade and tested it against the plastisheen fabric lining. The blade was sharp. He hoped sharp enough. He didn't know what else he would do if it wasn't. He certainly couldn't launch himself into a frenzy of brute force like he had against the capsule's outer shell. He might hurt her.

Holding his breath, he tested the blade against the lining. He withdrew, forced his hand to be steady, then tried again.

The liquid was clear, thick, more like a gelatin than water as he had expected. It bubbled from the rent made by the blade, ran slowly down the outside of the lining and pooled on the floor at his feet. Brett made his cut, six centimeters, then withdrew. He put his fingers inside the hole and felt the gelatin warmth. It was oily and smooth. He held his fingers to his nose, found it was odorless.

Brett smiled and applied the knife again.

A sound reached him. A series of clicks that reminded him of electrical breakers flipping themselves open. Or flipping themselves closed, completing a circuit.

He suddenly remembered the thing he had forgotten. The reason he had told himself to hurry. And it was happening too soon. He hadn't been quick enough.

Behind him, cooling fans kicked themselves on. Status and indicator lights flashed. From her wide speaker system, Cassandra began to emit a shrieking, growling wail.

Brett stared at the monitor embedded in the front panel of the Cassandra system. Messages scrolled across the screen in large amber letters.

Initializing emergency startup sequence.

Initializing link with main power grid.

Initializing parallel processor ports.

Initializing external sensor activation protocols.

Initializing memory cell dump.

The messages continued, and Brett understood what she was doing. Cassandra was taking back all of the systems he had delegated elsewhere. She was spontaneously resuming control of Persia Station. The bleat of the alarms rose to a painful level, and he knew what else she was doing. She was responding to the breach of the capsule, to what she perceived as an imminent threat to the biological component. To herself, in fact.

This was also why he had told himself to work so quickly. Cassandra never completely shutdown, not as long as she had access to a power source. She was designed to protect herself against deactivation and against activity that would compromise her hardwired mission directives. Enough of her had remained awake and alert to respond to this crisis, and now she had leapt to the task of rousing her latent members.

The cursor on the screen blinked, and Brett read the last line of print.

Initializing System Defense Mechanism.

Brett didn't wait for her to complete the task. He attacked the plastisheen fabric which separated him from Emily. He stabbed high at the lining, at the level of his forehead, and pulled against the knife with all his strength. The blade tried to turn in his hands, but he hung on. The fabric split with the sound of ripping sheets. The clear fluid gushed from the hole, drained over his chest and ran down his legs.


The smooth floor became slick with gel, and his feet slid out from under him. He

tried to catch himself, but his hands were oily. They banged off the flat metal surfaces. The hard edge of the capsule's bottom seal came up to meet him. A flare of white pain blinded him, then a wave of darkness.

Brett opened his eyes. His vision was blurred, uncertain. His head ached. Not a dull headache aching, but a sharp and fiery spike. He shook to clear his vision and almost screamed. Blood ran down the side of his nose, and he remembered falling. He blinked his vision clear, saw that he lay on his stomach in a pool of liquid. His eyes looked out at the point where Cassandra's merciless weight met the floor.

Still the growl of the alarm. *Ehht! Ehht!*

He forced himself to his knees. Pain struck at him and he had to wait there on his hands and knees, his head down, until the gray urge to faint passed. He grunted. The effort of climbing to his feet didn't get any easier.

Over the klaxons, Cassandra spoke. "Warning: Cassandra System Biological Capsule breach. System Defense Mechanism activated. Station data coded as  Sensitive' placed under security lock. Proximity Diagnostic scan initiated."

She repeated the message three times.

Brett faced her, wobbling on legs that seemed only tenuously connected to his torso. "Stop it. Cancel System Defense."

If Cassandra heard him, she didn't take note of his command. "Unauthorized personnel detected in Cassandra System location. Unauthorized personnel are advised to withdraw and report to Persia Station Security. This is your last warning."

Brett shouted back. "Logon: Brett, Markus Jasper. Passcode: Emily Rosette. Terminate System Defense Mechanism."

"Activating Emergency Broadcast Channel. All Personnel Message as follows: Unauthorized personnel have entered Persia Station secure Cassandra System zone. Unauthorized personnel have entered Persia Station secure Cassandra System zone. All station personnel are to proceed to Cassandra System zone and provide emergency assistance."

Brett cursed. The Emergency Broadcast Channel activated the comm system all over the station, transmitting a general warning message for everyone to hear. For Ilam and the others to hear. Brett listened to the reverberation of screeching alarms and Cassandra's echoed message outside the door, all the way down the hall.

He shouted his logon credentials at her again. It didn't help, and she didn't acknowledge him.

She wouldn't, he realized. He had become unauthorized personnel.

A new hum joined the cacophony, this one low, threatening. Brett could feel it vibrating in his chest. Cassandra had decided help either was not coming, or wouldn't arrive quickly enough to save her. Brett felt the hairs on his neck rise, then the hairs on his arms. She was activating her final system defense.

Bees, Brett thought. The room seemed to fill with disincorporated bees, the ghosts of a hundred hives. They fluttered across his skin, made his teeth chatter.

It wasn't bees. It was Cassandra charging her internal burst transformer. In a moment, she would begin to lash surges of raw and crackling electricity across her carapace. Her components were shielded for it. She'd just said as much, and she would send wave after wave of high voltage ♦ fatal voltage ♦ electricity rumbling along fiber-optic microchannels that crisscrossed her outer shell until he withdrew. Or until she inevitably overheated, short-circuited, committed a necessary suicide.

And Emily, vulnerable without the plastisheen capsule to protect her, would absorb the brunt of the charge.

He almost reached in and grabbed her then, but dismissed the thought at once. He hadn't disconnected the feeding tube from her back. He hadn't discerned how to dismantle the cables that pierced her skull. And he didn't know what it would do to her if he simply snapped them off.

Instead, Brett did the unthinkable.

He retrieved the heavy metal leg from the broken camp chair and wiped the gel from it the best he could. With the first blow, he cobwebbed the display monitor facing him. It snapped a greenish white, then went blank. He struck at the rows

of lights, making them pop and spark and shatter.

Cassandra continued to charge her transformer, shouting warnings.

Roaring, Brett demolished the shining sensor array. He battered at cables where they disappeared into the wall. He dashed ugly, sharp-edged dents into her carapace. He had to stop her. Finally, he struck the narrow bolts from the front panel. He used the chair leg to pry it aside, leaned his shoulder into the peeled edge and made room in which to work. He hacked away bundles of wiring that blocked him, and when there was space, he plunged his head and arms and as much of his upper body as would fit into the gap.

Inside her, it was hot. She smelled of scorched insulation and ozone. It was also dark, as black and dense as the vent home of the organism that had invaded his station. But Brett didn't need to see, only to raise his arms and lash the heavy cudgel and smash at everything that snapped and clanked and broke. He battered everything within reach of his arms, and knowing it was not enough, bulled himself further in. His feet left the floor and he wriggled further, clearing a jagged path along the boards and chips and sharp-toothed components he had destroyed.

He could still hear her, Cassandra, chanting her senseless warning. Her voice cracked. Its rhythm stumbled. She forgot her lines and had to begin again. She began to sound frenzied to him, and he grinned at her desperation and drove himself farther in.

At some point, he lost his weapon, but he didn't stop. He touched her secret places with his fingers, felt the rounded bulbs of her chip clusters. He tore them free. He grasped at stacked fiber-towers of neural cognate networks, clawed at them until his fingernails ripped and peeled back. He locked his teeth on a bank of silicon wafers, chewed them to shards and spit them, bloodied, away from him.

Cassandra shuddered around him. Her words slid into a constant, ululating moan. A voice caught in a single, unspeakable thought.

Brett smelled the poisonous odor of electrical component smoke. He coughed on it. It stung his eyes. He forced himself back, out of her again. The razor edges of the panel caught his elbows and cut long, gouging strips up his arms. He fell to the floor, landed hard, caught himself before he bowled completely over. Then

he sat there, leaning back on his braced arms, panting.

Cassandra made no noise at all.

He waited for evidence of a fire, but Cassandra had been built not to burn. What insulation and combustible wiring there was fried itself away. He heard it hiss until it was gone, and then there was silence again. A black and noxious smoke poured from her various seams, from the holes he had punched in her panels, but it was already lessening. On the other hand, it wasn't dissipating. The atmospheric purge controls had been taken back from their distant components when Cassandra revived herself, and command of them had died with her.

Brett peered through the haze, breathing through his mouth, and considered what that might mean. Not just atmospheric, but air mixtures, communications, autonomic life support. Cassandra had reclaimed them all.

If there had been thirty people still in the station, programming the remote devices that actually performed these functions would have been a priority. Thirty would have burned up the healthy atmosphere in something less than three hours. As it was, only he and Ilam's patients remained, and they were on their way out, if they weren't already in the Escape Module. The remaining heat and air would last for several hours, he imagined. Probably longer than he would. If it didn't, there were always e-suits on the upper levels.

He didn't expect that he would need them.

Brett pushed himself up. He checked the cuts on his arms, probed the gash on his forehead. Each one of them hurt, but the blood was already starting to thicken. He wiped his face against the sleeve of his shipsuit. It would have to do.

He picked up the knife where it had skittered off into a corner when he slipped. A few more cuts and he removed a wide sheet of the inner lining roughly the same size as the piece of plastisheen shell he had broken out earlier. He stopped then, and leaned his head into the hole. Dollops of gel strung down from the ceiling, gathered in piles on the capsule's floor. Inside, it was all moisture and dank odor and shimmers of light from his work lamps.

He touched her with his hand, tentatively at first, a trembling roll with his fingers down the side of her body. He felt the protrusions of her shoulder joints through the slick plastic material of her jumper, the place where her arms had once been.

On down her side, he could pick out the ridges of her individual ribs. Down to the curve of her hip and the outside of her thigh. She felt cool to the touch, but that was because she had been immersed in the fluid, he was certain.

He examined her breathing, because he hadn't thought to do it immediately, when he should have. He experienced a moment of panic and wondered how he could have neglected such an elementary thing, but her chest rose and fell, her nostrils flared, her eyes blinked. She'd made the transition from oxygenated fluid to atmosphere without difficulty, just as she was engineered to do, by quietly retching the fluid from her lungs. It had run down her chest and pooled on the floor. He leaned into the capsule and held his hand flat, a few centimeters from her nose. Her breath was warm against his palm, and he shuddered at the feel of it.

Emily's breath on his skin. It made him want to weep to feel it again.

But he didn't have time for weeping. There was too much yet to be done. Brett pulled himself up as straight and tall as he could. He examined the feeding tube where it pierced her back. He stood on the tips of his toes and studied the optical cables in her skull. He got onto his knees and peered at the metal clamps that bound the sheared stumps of her legs to the capsule's floor, then the series of padded supports bolted to the capsule's back wall which held her more or less in a natural pose.

Eventually, he understood it all. He removed the optical cables one at a time, sliding them from their microdiameter sheaths. They came readily enough and with no apparent resistance, but this wasn't one of his concerns. He wasn't worried about the integrity of her neural networks.

The feeding apparatus was a similar problem. A plastic receptor port had been implanted just above her left kidney. It was small, circular, about the width of his pinky finger. The feeding tube was a pliable hose which vacuum sealed into that port. When he pressed the release clasp at the juncture between hose and port, the tube came free with a hiss. At its end was a tapered spout a few centimeters long, like a particularly large gauged needle. Brett probed the hole where it had entered her. In the absence of the spout, a solid plastic panel had snapped closed, blocking the hole.

He understood her this way, in small pieces. An examination of her back, a

studied progress from fiber to fiber across the curve of her skull, the nubs of her shoulder joints. He didn't allow himself to step back, to consider her as a full person. Without the capsule wall between them, she was totally divorced from Cassandra. She was totally human, completely Emily. Despite what had been done to her, the missing limbs, the skull sheared of her wheaten glory, he would have recognized her if he allowed himself. And the recognition would have shattered him.

He didn't remove her from the clamps or what he discovered to be the complex harness fused with her jumper that bound her to the pads at her back. He had nowhere to put her if her removed her from the capsule. He wanted to embrace her, to hold her in his arms as he took these last steps, but it was better this way, he knew.

Brett went back to the table and retrieved all of his implements, then returned to her.

He didn't know if she could hear him, or if her mind recorded any information now that the optical fibers had been removed and Cassandra's fist of control broken. He spoke to her anyway, finding that casual, explanatory tone Liston had used with Djen.

He held up one of the test tubes laden with organisms for her to see. "This is the cause of all our problems. Can you believe it? You can't see them, I know, but each of these containers has probably something on the order of several billion of the little bastards inside. They get into your brain, they make you a little crazy, then more than a little dead. We've established that as fact. We've spent the last few days trying to find a solution to the problem. I don't know if Cassandra told you that.

"We did, by the way. Find a solution. Only a few of us made it that far, but that was better than nothing, better than none of us. Given all of that, you might think that I've gone a little too long without getting the procedure myself, given what I'm about to propose to you. But I don't think you'd disagree too much. I mean, even if it goes wrong, it's better than what you had before, right?"

"You see, Liston explained it to me, though I don't think he had quite this application in mind." Brett smiled, wide and reassuring. He shook the test tube so that the fluid inside caught the light. "He said the method the organism used

to obtain control over us was a massive infection and realignment of the pre-frontal cortex, the part of our brain that makes us. . .us. I don't know what they did to you, Emily. I don't know how to reverse the self-definitional suppression that keeps you away from me, but the organism does. Maybe not the exact same way, maybe not the best way, but maybe the right way. I'm guessing. I'm taking a chance that they can save you from what's been done to you."

He moved closer to her and pried the stopper from the end of the test tube.

"I want you to take this, Em. I want you to trust me. See, Djen said I had to choose. I chose. I chose you. And this is how I make good."

Brett placed his fingers against her lips. He stroked her jaw and squeezed gently until her mouth parted. She didn't resist him. He didn't know if she could, but he smiled because she didn't fight him, at least.

"Over the lips, past the gums, watch out stomach, here it comes."

He poured the liquid into her mouth, then massaged her throat until she swallowed. He suspected that it tasted bad, probably even worse than it smelled, but she didn't react to it at all. She took it as though she trusted him. Brett duplicated the process three times, until she had taken all four vials. He pressed his hand beneath her chin and closed her mouth.

"That probably isn't the fastest way to get them to your brain, but it was the only way I could think of that didn't involve loading them into auto-injector vials, and then I was sure to spill some. I also don't know how long this might take, but I'll wait with you as long as I can. I promise."

When he was finished, he stepped back and settled his shoulder against Cassandra's carapace. It was warm, and the heat felt wonderful to him, relaxing. He found a spot beyond the congealing pool of gel and sat down. He could still see her.

And he was certain she could still hear him.

"I have to tell you the rest, so you'll know. You'll ask me why I didn't do this sooner. Five years! That's what you'll say to me. How could I wait for five years to do something? I wanted to help you, Em. I wanted to so badly, but I couldn't. The station depended on Cassandra. Cassandra runs everything, and she wasn't

going to let you go unless I killed her. And I couldn't kill her without killing everyone else, and even if I did, where would that have left you? I didn't have the mechanism to save your mind. Cassandra wasn't going to tell me how to undo it, and I wouldn't have been able to figure it out without her until the organism presented itself. Except, of course, for the fact that even then I couldn't proceed. I couldn't afford to kill Cassandra until everyone who could be saved was safely away.

"So that's how we arrived at this point. Just you and me, the station is abandoned; Earth is a billion kilometers away, and no one is coming back here any time soon. Since Cassandra is no longer managing all the autonomic systems, we can expect that atmospheric deprivation will kill us shortly if the cold doesn't get us first. Even if I had the time and knowledge to fire up all the interlacing life support devices, it would only prolong the inevitable. We can't leave. Ilam and the others are taking the Escape Module, and they can't wait for us.

"And beyond all of that, I have the little problem that I'm infected with the same organism as everyone else, the same as you, and I can't take the therapy until I'm certain--absolutely certain--that you're back and healthy and sane, because I'd forget what I was doing, what had to be done to save you. That you were capable of being saved in the first place. I'm hoping I won't be a raving madman by that time, because I'd like to see you again. I'd really like to talk to you once more.

"That's my dilemma. I don't have time to save both you and myself, and by choosing to save you, I've killed us both.

"And my one hope is that soon you'll open your eyes and smile at me and say that you understand it all. You'll tell me that you forgive me, that I made the right choice, that you're willing to have a few last hours together in exchange for everything else that might have been. That's all. Just tell me it was good enough."

Tell me I kept my promises.

Across the room, the intercom buzzed. Brett rose, went over and stood beside it.

"Brett here."

Static crackled over the line, but he recognized Ilam's voice through it. "Are you all right?"

"I'm still here."

"We heard Cassandra. She didn't sound very happy."


"She wasn't. She doesn't have to worry about it anymore. Neither do you. Are you in the module?"

"The others are inside. I'm at the airlock. I thought I should check in one last time, so you would know we were getting ready to leave."

Ilam sounded bleak. Leaving a man behind was not a decision he accepted willingly. Brett understood this, and would have felt the same.

"I'm staying," he said. "You have a good flight."

"Brett, wait a moment."

"What? Do you need piloting instructions? Sit in the chair, hit the button that says Launch'. The ship will do the rest."

"Please, just a moment."

"You don't have a moment. Every second you stay compromises the safety of the crew and the integrity of the procedure. It doesn't do anybody a damned bit of good if you dally around attracting organisms to carry back to Earth."

"We won't take any back. I'll see to that, and I'll make sure the pickup vessel follows complete decon protocols."

Brett shook his head. "We thought we had sufficient decon protocols."

Ilam hesitated. When he spoke, his voice was quiet. "Is she out of the capsule

yet? Have you gotten that far?"

Brett didn't answer. He wasn't tempted to ask how Ilam knew.

"You didn't have to tell me," Ilam said. "Even before Cassandra started blathering about murder, it was obvious what you would be doing. I've been following your progress around the station, until you discontinued my link through Cassandra, that is."

"She's infected with the organism, Ilam. Just like I am."

"Christ. What were you thinking?"

"It isn't your problem. Get the ship out of here."

"Wait, please." Ilam paused to gather himself. He was thinking quickly, Brett thought, trying to stumble across any leverage that would move him. "We can manage that."

"Not without excessive risk, and not without burning time you don't have."

Ilam cursed again, then he said, "We'll find a way to treat her here, in process. The ship has a rudimentary mech lab. We'll insist on stringent decon procedures both at pickup and before you enter Earth's atmosphere, maybe keep both of you quarantined. We can tell them what to look for, Markus. We can show them how to treat it."

Unless you don't get the opportunity, Brett thought. You don't have the equipment to quarantine us on board the module, and you don't understand what I've done. You don't know how infected she is, maybe more than anyone else. Maybe the therapy won't work well enough and the organism would live in her, breeding, until the mechs inside the others dissolved and they were ripe for re-infestation. It wasn't a chance he was willing to take.

Were there other ways he could have done it? He suspected there were. He could have taken Cassandra apart earlier and strapped the crew into e-suits or enlisted Ilam to keep the life support systems running. He could have incubated Emily and hauled her along without the organism, waited for better facilities and nimbler minds to solve the problem of her self-definitional suppression. With enough time, Ilam probably could have designed a mech just for that task.

But he had seen doctors pore over her once before. He'd heard them pronounce her condition immedicable. And he had seen Ilam's doubt. No one else would recognize her as anything but a biological component of an Cassandra system. They wouldn't take the steps necessary to save her. Like Ilam, they would say he was crazy to have ever thought anything of her remained and that would be the end of it. After he had received his own vial of mech therapy, he would agree with them.

Or perhaps they couldn't help her. Maybe only the bastards at Palimpsest Industries fully understood the procedure that had made her what she was. Cassandra suggested as much. Most of the subjects went mad when the suppressions were removed.

Definitely, no one would countenance the therapy he had developed, prescribed and administered. Even if they considered her beyond help, they would have condemned him.

But at the last, each of these options involved the potential exposure of more people to the organism, more potential deaths, even with the mech protocol Liston and Ilam had developed.

He had chosen the only course of action that was reasonable. Brett would sacrifice his life for her, and one life was enough.

"No," was all he said.

Ilam might have offered a further argument, but Brett didn't let him. He toggled the intercom off and smashed the speaker and transmit console. The discussion was finished.

Brett turned away and went back to sit near Emily and wait.

29.

He waited.

Through the rumble of the Escape Module engaging its engines, through the heady and violent roar of its launch up through the retractable dome, through the ensuing silences and emptiness of a station abandoned of all human life but his own, Brett waited. He tore the legs off his flimsy table and slabbed it against

Cassandra's front panels, then he sat on it with his back against her warmth and his head beside the shattered capsule. When he looked up, he could see Emily.

When he looked down, he could see the cards as he had dealt them, spread out between his legs. He couldn't remember the spread as Ritter had shown him, nor the meaning of any of the cards themselves. He hadn't found Ritter's portable computer with the database of meanings and didn't feel like searching for it. He couldn't even say why he had retrieved the cards in the first place. It had been something he had done, an unconsidered item on his list of errands.

He realized vaguely that this was probably a bad sign, some sort of negative indicator of the organisms' control over him. But he couldn't parse the significance of it, so he left it alone. Instead, he dealt the cards because it was something to do while he waited.

He liked the feel of them in his hands, their slick and sturdy weight, the mechanical process of shuffle and deal and cogitation. This was a thing he had discovered. What the cards meant ♦ what people said they meant ♦ was insignificant to him. He had made his choices and not just divined, but forged his future. There was nothing prophetic they could tell him that was of any value or that wasn't already known.

But as he looked at them, studied their pictures, their backgrounds, the warm and solid pictures they bore, he built a narrative. The cards whispered stories constructed of image and thought and loosely tethered correlations. They told a story that was unique each time he laid them down, and though it was not his story, it was a human one. It was populated by lives and destinies that were glorious, by people with long and complex histories that intertwined with his by the sheer and simple fact of their human community. They were not real, but he understood them.

He surveyed the cards before him, most of them Cups. The colors were green and blue, sky and sea, shore and foam. The man in the first card stood on the sand and peered off into the wide and empty horizon, searching for ships that did not come, or ships that had gone. Brett understood him. A man bound to the land by history and training, a man terrified of the vast deep that stretched beyond him. But a man who loved it as well, who heard the crash of the waves and experienced both terror and desire.

The unknown man was in the next card as well, and all the ones that followed. A man desperate to find his way, to achieve some victory over the terror, some grasp on the thing he desired most, never realizing that the two were not distinguishable. It was not an either/or proposition. There was no desire without terror, and no terror without the thing he most wanted. They were the same.

He skipped ahead to the end to see if he ever discovered the truth. Did he claim his desire only to find, once he had it, that there was no pleasure in owning it? That the pleasure was all in the pursuit of it? Did he become disillusioned by knowledge, or paralyzed by fear so that wisdom was never gained? Was there wisdom in victory, or was the wisdom in the sacrifices made?

But the card held no answers. The image was not a Cup. It was a man lying in his bed, dreaming, and Brett couldn't determine if the dreams were troubled or pleasant. And he understood this as well. It wasn't given to a man to know if he won the games he played with himself. He played the game and that was all. He made his choices, set his priorities and lived with the consequences they bore. There was never an end.

But the terror, was it the fear of choosing correctly, or of choosing poorly. Or was it simply the nature of choice itself.

Every decision creates the world in which a man walks. Every action or failure to act is an event of divine proportion. Every word said and potential realized chisels a tale in indelible stone. None of it can be called back again.

Brett leaned his back against the still warm shell that had been Cassandra. The smoke had mostly dissipated. He'd opened the door into the corridor for ventilation because there had been no reason to keep it closed. No one remained to disturb him.

Once more, he sniffed at the air and checked through his mental list of symptoms for hypoxia. Shortness of breath. Motes in his vision when he blinked his eyes. He spoke to himself and his voice sounded lucid, normal. There was no dizziness when he made himself stand.

He studied Emily as well at those times. She looked back at him, blinking rarely. Her lips carried no expression. He felt her cheeks and forehead for indications of fever. For long moments, he watched her breathe in shallow rhythm. He placed his fingers against her neck and took the measure of her strong and steady pulse.

It was all he could do. He had no idea at all what to look for from her, what form the advance of the organism through her system would take. It occurred to him that she could follow Ritter's course, and Tappen's and Micah's. If she slipped into a coma, would he even realize it? Would he only know that he had missed his opportunity to save her when she ceased to breathe?

He had no answers, and he didn't reach to find them. The terror was in the choice, not in the decision made.

He believed with the infallibility of youth that when the time came to act, he would know.

So he checked her often, but never for long. The same way he thought of the others often, but with the same brevity. He imagined the moment of launch, its glorious conflagration, the settling weight of acceleration, the grip on the armrests and grinding of teeth. Then the feather-wafting lightness before the grav rotation motors kicked in. The breathless pause before the successful comm transmit light flickered on. He visualized the flare leaping from beacon to beacon, back through the network of deep space outpost stations, eventually all the way to Earth. Cycled outward again after verification, this time woven with instructions to a rescue vessel he visualized as massive thrust engines and bulbous witch-wart reception arrays and yawning fluorescent recovery bays.

He stopped there with rescue on the way. The last of his people had passed beyond his power to save them. Others would do the rest, and that pleased him. It released the tension that had filled his lungs with fluid as heavy and smothering as that Emily had borne in the capsule.

It took seconds to imagine, and that was enough. Longer, and time vanished from him. He folded himself in a cloak of images, experiences and memories that sprung like poppies from night shaded synaptic valleys. He lost himself beside shallow ponds reflecting his life back at him.

And then he came back with a snap and a curse and wondered if it would be the last time he recovered. He carried the auto-injector in the pocket against his hip, the vial with his name on the label loaded into the chamber, and prayed he wouldn't have to use it. Not until the rest was done, and Emily was saved.

He prayed his mind wouldn't wander.

And he didn't allow the shortage of atmosphere to bother him. It had become plain that the air would outlast him, probably by several hours.

After a pair of hours, he thought the fever had finally set in. Her skin was flushed. It felt hot and dry to his touch. He couldn't be certain, because the temperature in the station had begun to fall. He couldn't see his breath yet, but the room was becoming uncomfortable. In another hour, he'd have to go in search of blankets for both of them or a portable heating unit if he could find one, though more for her because her skin and the plastic jumper she wore still felt damp to him. It would be ludicrous to bring her to the brink of salvation only to lose her to pneumonia.

Her eyes seemed brighter, on the verge of alertness. The pupils dilated in the glare of the halogens as though she perceived them through a haze, tried and failed to focus on their glare. Brett noticed these things, and when he put his hands on her— which was more often now—he noticed that his fingers trembled.

The cards were put away. He didn't need the distraction anymore. With each breath she took he expected a sign, some symbol of her aroused consciousness. Brett had moved his table so that he sat in the middle of the floor facing her. When he stood, he was within arm's reach.

He watched her, timing the expansion of his lungs with hers. He smiled, fixed and constant, because he wanted that to be the first thing she saw. He wanted her to emerge and know at once that she was fine.

Because he couldn't contain his anticipation, he spoke to her.

"Look at you. You're going to kill me if I let you near a mirror. What, I couldn't even find the time to get those smudges from the smoke off your nose? I can hear you saying that. You remember the first time your parents came to the house? How we spent all those hours weeding the flowerbeds and mowing the grass, then you got the brilliant idea to paint the porch railing an hour before they were supposed to arrive? You had paint on your nose and I didn't tell you. I don't even remember if I had noticed it before your mother said it was there. I probably didn't, you know. I was so scared, so fucking out of my mind. They'd hate the house. They'd hate my job. For God's sake, they'd hate *me*."

"But you were beautiful to me. You're still beautiful to me. That's the real reason I wouldn't have noticed the paint on your nose, even if it was that awful green. What was that called? Evergreen or Aspen Emerald or something."

He laughed at the memory, so clear and fresh he could almost hold it in his hands, turn it over like a precious heirloom. Oh, she'd given him hell before they went to bed. He remembered that too. Pouncing on him after he was under the covers and couldn't get his arms free, using her long fingers to tickle him along his ribs, on the side of his neck, growling at him so her parents couldn't hear her through the walls and him not able to tell if she was truly angry and just wanting to play.

They did play later, when the squall swept over the beach from skies that had been clear just moments before. He had taken her by lightning strike and pealing thunder. He had knelt on his haunches and she straddled him, and while they made love, he watched the storm through the window beyond her shoulder. It struck the wave crests silver and white; shadows stained the water black. The wind sheared off three of their shutters, and in the morning he was only able to find one of them, and that in three separate pieces almost forty meters down the beach.

He thought he saw her mouth move. A sudden quirk of the lips at the corner, like a smile that had almost blossomed. Because maybe she remembered too—the rest, the part where she was drawing up against a shrieking climax, certain that the storm drowned her voice. But it hadn't muffled her mother's knock on the bedroom door, her nearly frantic questions about the competency of such an old house to survive the night. Do you think it might be wise if we just jumped in the car and sought shelter in the hotel in town?

He took out the auto-injector and examined it. Too firm a tug, though. It caught on the edge of his pocket, turned it inside out. A vial spilled out, and rolled across the tabletop, over the edge and settled in the pool of gel. He retrieved it quickly, dried it on his arm. He made certain the label was still attached.

Didn't want to get them confused. No, that would be a bad idea.

The ink had run, but the print was still legible.

Brett.

He read the vial in the injector for good measure. Emily. It was the third time in the half hour since he'd made the switch that he'd checked them.

He had wondered over the last few hours if Cassandra had known what she was

doing at the time. When he asked her to help him, to prepare a mech protocol from Liston and Ilam's design from Emily's neurological image, had she suspected at all? If she did, she'd said nothing as she complied with his instructions. And if she didn't, if she had failed to make the connection between their conversations and such an obvious clue, what did that indicate about the possession of consciousness he had ascribed to her?

He should have asked. He wished he could ask now. Had it pleased her to sacrifice herself for his happiness?

She had said to him: The sedative medication prescribed by Dr. Liston is not a necessary element in this treatment. Emily Rosette's neurological structure currently conforms with the image transmitted to the nanomech units. Their design function is the eradication of unauthorized organisms. Emily Rosette would not experience the physical discomfort projected by Dr. Liston for other station personnel in this treatment.

Project her likelihood of surviving the therapy, he had asked.

Due to the precise image record and frequent neurological calibration, Emily Rosette would be highly expected to recover from the application of this treatment without substantial risk.

He didn't know if she had meant it or merely followed his orders.

But Emily was coming to him now. He could sense her rising up to him from the well of shadows, sloughing off the rigid skin of Cassandra's imposed control. He nestled the grip of the injector in his palm and pressed his finger along its trigger. It was almost time.

And he would make it to the end. A few minutes longer and Emily would give him a sign that she was ready for the injection. Shortly after, minutes—maybe as much as an hour, she would be awake and alert and he would explain again the things he had done. She would tell him to take his own injection, but he wouldn't. A waste of time, he would tell her. The atmosphere would be gone before the sedative could wear off, and those last hours were his, hers. With her to focus him, the organism would be controlled.

It was the only script of events he would imagine.

Brett rose and moved toward her. "You remember the house, don't you? How could you forget it? Even falling down, it was a wonderful place for us. I've kept it, Em. The mortgage comes out of my account. It's probably paid off now. If it's still standing, I mean.

"But I think of the house and you know what I remember? The ocean. The way it smells, the way it looked in the morning as the sun broke the horizon. Orange and red, like it was on fire. I think about home often here because there isn't any water. They say there is, or that one day there will be. Archae Stoddard will have oceans if we have to create them one raindrop at a time, but I know it will never be the same as it was there. They won't ever have the view we had from our porch.

"It won't ever be the same, and it won't ever have you."

He stepped nearer. If she was to emerge from her suppression, there were things he had yet to do. He had to loosen her from the harness. He had to open a space in the back of her jumper, expose her spine for the injection. He had to find just the right spot between vertebrae as Liston had done and Cassandra had explained to him in detail, then manage not to miss. Though as Ilam had told him, it wouldn't matter. The mechs would do their job. But once she returned to him, he wouldn't want to lose a moment with her. He couldn't afford a delay of even a minute when so few remained to them.

"You can hear me, can't you? You can't respond, and maybe you don't understand why, but you hear me."

Another step and he stood beside her. He looked up at her face. Her mouth moved, the lips parted. She made a sound like a whisper.

"Emily?"

She blinked. Her eyes flicked from side to side, then fixed on him.

Emily.

He wanted to shout.

"I'm here," he said, but his throat was thick. The sound that came out was unintelligible. "It's me, Markus. I'm here. I've always been here."

He reached for her, not trembling this time, but sure. She was reaching for him in the only way she could. Responding to him in a way he had forgotten over the years. Recognizing him as himself, as Markus.

Brett placed his hand against her cheek. For a terrible, divine instant, he thought she might speak.

And in that moment, Brett was swept away.

He plunged down a vast precipice that was darkness, cool and plastic. He hurtled through emptiness with the wind howling in his ears and his body pinwheeling. For a time he wailed the screams of the anguished, but his voice made no sound in his ears. There was no testimony to his loss.

Emily. Where was Emily in this moment? What realizations were coming to her? Her shaved head, her lack of arms and legs, this alien place and strange dream that had no cognate with life as she remembered it. Where was the rural Georgia highway, the morning in spring, the ocean horizon just beyond the distant trees?

He had come so far to bring her nothing. Too far for the organism to snatch him back at the edge.

But that was exactly what had been done. He knew this night and its smothering embrace. Ritter had shown it to him.

The darkness shattered, colors created in the space of an instant flared before him. Brett translated from nowhere to here, Keter to Malkhut. His eyes adjusted and his body enfolded him, and he stood in the midst of a golden day, on a beach littered with debris and pounded by winter waves. The air was brisk and he wore a linen jacket that didn't blunt the slicing wind. His hair blew across his eyes, and he wished he had worn a hat. He did the best he could, gathering as many of the strands as he could catch and twisting them around and holding the improvised pony tail against his shoulder with his hand.

This would have been the property line. Just up the slope, past the edge of the beach where the land began to roll up in hills like dunes and the sand became sheaves of tall grass, he could see the post Don the realtor had told them to look for. The house was only partially visible from here. Much of it vanished around the curve of the shore, but he could see the roof. He could tell from here that it would need new shingles by spring if it wasn't leaking already.

But he didn't really see the bad roof or the weathered boards, the dry rot and collapsing gutters. He saw the potential beneath. New lights in the dining room and a week's scrubbing on the walls and that grand old hall would shine. The right stain and the rich brown panels would give you your reflection. And there were windows in every room, thin and tall, and in the heat of summer, sunlight would shaft through the panes and fill the house with warmth. The breaking

waves would ease him--them--to sleep at night instead of coarse shouts and gunshots and squealing tires.

Tears sprang into his eyes, but he shook his head to keep them back. He balled his fingers into fists. He wasn't going to cry! Not over such a silly thing as a house. Not when there would be other houses more in their price range, something less than a hundred thousand dollars for a glorified barn that had seen better times. It had probably seen better times before the millennium had turned.

What do you think? Markus said in his ear. He knew what Markus wanted to hear.

It's too much.

Of course it's too much, but that wasn't what I asked you.

He turned, shivering, the few loose hairs still tickling the back of his neck as the wind caught them. Markus stood beside him with his arms crossed over his chest. He wasn't looking at him, but out over the water. He followed Markus's gaze and saw a ship out there, plowing through the chop, its stack belching a black roil of smoke.

He hadn't answered, and Markus said, *I like the ocean. I like the idea of having a beach.*

You're from Indiana. What do you know about the ocean?

Markus shrugged. *I know that it's almost hurricane season and Bobby or Owen or Mathilda will slide right past here this year and every year after that, and each time they'll do a little damage. They'll take shutters and porch railings, they'll smash windows and flood the kitchen. And one day, one of them will get lucky and wash the whole damned thing out to sea. I know a beach home is an idiot's purchase for people who can barely afford them.*

That was what Markus really felt. He'd said that from the beginning. The only reason they'd even come this far was because Markus was willing to humor him.

They're not going to come down on the price, he said.

Of course not. The money isn't about the house, it's about the land. The house is

a bonus.

It was time for them to go. When Markus got that tone, that harsh annoyance, it meant he was done. His mood had soured, his thoughts had distanced him from meaningful contact. All that remained was sarcasm and a sort of determined deafness that let him believe he wasn't snapping.

He tried to smile and looped his hand between Markus's arm and ribs. *Walk me back to the car.*

But Markus didn't move. *You haven't answered my question.*

Which one is that?

I asked you what you thought.

His heart stumbled, began to hammer. *What are you saying?*

I'm saying, do you want the goddamned house or not? I'm not going to try to talk you into it.

_You hate the house. You have from the beginning. _

Sure, but is it better than where we're at now? That's an easy answer. Can I make the financial aspect work? Not happily, but we can do it. The question has nothing to do with the house. It's about us. It's about my wanting something for no other reason than because you want it. I love you, Emily. You tell me you want it and I'll make it happen.

You won't resent it six months from now? You promise, when the refrigerator breaks or the porch falls down, you won't start calling it my house and my fault, and griping about how you should have know better?

Markus rolled his eyes as though to indicate that type of behavior was ludicrously beneath him_. I can't guarantee you we'll have money left over for more furniture. We'll have to make due with the stuff we already have for awhile._

Tell me you really mean this.

Going once.

I mean it.

Going twice.

Markus!

Last call.

Yes! Fine, all right. I want it. I want it more than anything.

*Sold to the pretty young lady shivering her butt off in the front row!
Congratulations, ma'am, you've just bought yourself a house.*

He threw his arms around Markus's neck, and he did cry now. The tears rolled down his cheeks and seemed to freeze there. Markus held him in return, and he was strong and warm, and happy, too. Markus was just as happy as he was. With all of himself, all of his soul and mind, he squeezed and whispered the only words big enough to express himself.

I love you, Markus.

The image froze, then faded. Time skipped forward, backward against a backdrop of velvet blankness.

More scenes flooded through Brett's consciousness. Rick Thompson's fumbling in the back seat of his father's car after the spring dance and the all of three minutes it took to lose their mutual virginity. The wash of horror from the from the failing grade on the first calculus exam his freshman year in high school, the way Mr. Axtell frowned at him as he handed the paper back. The sleepover at Ann Meredith's house when Ann and Theresa and three of the other girls had held him down on the bed and tickled him until he peed his pants, then Ann telling the whole neighborhood about it the next day. The shame and hatred still burned white hot even after all these years. He stood naked before a mirror, studying himself in profile, frowning at his small breasts and pale skin. His eyes were nice, probably his best feature, but what boy in his right mind would find him attractive just for his eyes, for God's sake! Was he ever going to fill out his sweaters like that slut Molly Branigan?

There was a morning in late spring. The air was humid, oppressive. Where the sun struck the road, it raised shimmers of mist and heat. The storm last night had been terrific. The thunder had rattled the windows. The rain tumbled against the roof not with patters, but with thumps. He couldn't believe Markus had slept through it. He certainly hadn't, and though they'd gone to bed together, he'd grown tired of the endless struggle to get Markus to do something with his arms other than flop them in a loose embrace that let him snore in his ear. You had to be held through a storm like that or all you did was lay awake staring at the ceiling and imagining nightmares. So he had gotten up, thrown on his silk kimono and gone downstairs. He'd watched television until he fell asleep curled up in the chair, the volume almost all the way up so he could hear it over the thunder and pane-rattling wind.

But the storm was over now and the day was shaping up gloriously--splendid as a day can be only after a grand and violent storm. He went over the list in his mind as Markus drove. Food for Mr. Grumbly before he stopped just turning his nose up at leftovers and became Mr. Downright Hostile. Bread. Milk. If he could talk Markus into it, maybe some more paint for the upstairs hallway. It was a waste of money, but even after three weeks, he couldn't bring himself to like the look of Sherpa Otter as much on the wall as he had in the can.

He swung his legs around and crossed his feet, dangled them out the window. It put him lower in the seat so the wind didn't tangle his hair, though he wouldn't have asked to have the top put up for anything. He leaned back until his head rested on the side of Markus's seat and closed his eyes. The sun shone down on his face and it felt good. A promise of the summer to come after a gray and dismal winter.

What else? Something chocolate that looked homemade to take to the office on Tuesday for Melissa's bridal shower. He already had the gift, so that was one less thing to worry about. He wrinkled his brow. He was missing something. He mentally rifled the cabinets in the kitchen, the medicine chest in the bathroom, the pantry. He'd purchased tampons just last week, but didn't expect to have to invite the mouse into the house until the end of the month, so that wasn't it.

Eggs? Chicken? He couldn't remember.

Beside him, Markus jerked his arms, fiercely enough he could feel the seat rock beneath his head. The car followed the rough motion, and he pitched forward.

He heard Markus curse, a growling, ugly, panicked exclamation.

Carpet cleaner, that was it. Jesus, how could he forget that! He wanted it handy for the new rug in the living room before Mr. Grumbly's bouts of diarrhea and the springtime mud ruined it.

He thought this and sprang his eyes open. There was a sound, a moist and slushy sound. The world spun before him, but he was slow, out of time, out of synch with the universe. He threw out his hands to steady himself, but there was nothing to hold.

Sensations piled against him, too rapidly to snatch them all up. There was a lurch and he smacked his head against something hard. A curious feeling like weightlessness. He seemed to tumble end over end. Then he soared through an eagle's flight fantasy. The steep walls of Miller's Hollow unfurled beneath him, the stunning sky glistened above him. Beyond the trees, the sun struck a swath of ocean and colored it molten.

Then there was pain in his thighs, just above the knees. He cried out, and then he was Icarus plummeting into the sea. Except the sea was hard, dense with scrabbles of stone and razor grass and drops of empty air between. The impact punched the breath from his lungs. He rose into the air again and fell further along. Sharp rocks tore at his arms, bruised his back.

He tumbled, blind and disoriented and incoherent--aware of his incoherence--and knowing in the same breath that it was wrong. Terribly wrong, the type of tragedy that you read about in the papers or watched on the news.

One last launch into open space, then he landed flat on a slab of stone. He heard something crack. His neck went numb the way his arm would if he triggered his funny bone. Not numbness exactly, but a sort of insensate burn and tingle. High above him he could see a telephone pole, and the curve of the ridge where the road hairpinned into Miller's Corner.

He had two thoughts, intertwined. He was hurt badly, probably worse than he wanted to know. And how long would it take for Markus to come for him?

After that, there was only darkness.

And Brett again.

There were no words in this place, no thought as he recognized it, only the cascade of images and memories and the life Emily had lived. The world she had created for herself. The organism spoke her mind to Brett as eloquently and completely as he knew his own.

The small portion of himself that remained ached for her. The Emily he had been shown, the Emily he experienced, was a profound creature. She was a universe unto herself. Vast, complex, bearing a secret life and a secret beauty he had never known. He had missed so much of her, and what he knew of her now made her an icon, a figure of awe.

And he understood that she knew his mind as well. His memories. His world. In the darkness, they inhabited one another without touching. Their spirits flickered along parallel paths that would never meet. There were others waiting to commune. Phantoms of a race a million years dead. The crimson-tinged instincts of animals. Human memories from two thousand lives and two thousand corpses sealed in their steel-skinned graves all over Archae Stoddard. A living network of pure memory circulated around a psychic latticework of organisms that struggled to comprehend the failures of the hosts it was created to serve. The rigidity of its programming allowed no comprehension.

Brett understood it all in the same way he shared Emily's memory and Micah's past and the entire history of the organisms' creators. The fluctuating murmur of the organism in his brain, in the body he no longer possessed, told him any secret he chose to hear. Unity tolerated no secrecy.

Brett wept.

Because he had failed. He'd underestimated the organisms' grasp on him. He had carried the vials in his pocket and paralyzed himself at the crossroads of choice. Don't use them too soon. Don't waste time. The terror had been in the choice, and he hadn't chosen because of it. In not choosing, the choices had been made for him.

There would be no gunshot salvation this time, not for him and not for Emily when the time came. He could do nothing else. He was bodiless. Emily was bodiless as well, as free of volition as she had ever been. And in time, there would be no bodies at all, only decaying tissue. No Brett, no Emily, just the extrasensory exchange of the experiences they had been. He wondered if the

organism would find any significance in it.

He wondered. And that was taken from him also.

Enclosed in gathering night, he knew that he screamed, or that she screamed, but its meaning was empty.

I suck the warm and liquid nutrient. I swell with the joy of that which I receive. I increase from the bounty of the troughs of happiness and lap my tendril tongue into the waters of life. Sweet is the fountain! Wide is my girth! Pleasure is myself! I am joy. My distant self echoes joy.

I have shared the long rest and the dimness of the soil. I have known privation. Hunger has been my constant companion. Hunger and grief. I have not done as I was made to do. I have failed the Makers and the Makers have gone.

In the ice-blast and wind-shriek, I have cloaked myself in shells of isolation and mourned. But now I am. I feed on brightness, and my light illuminates myself. And I sing the pleasure of my forming. I slake my thirst and sing for my selves both near and far of joy and mind and quicksilver thought.

How fat I have grown! I delight in the broadness that is myself. I rejoice because I have become all things and all means and my communication is complete. I sing the song of the Makers before and the Makers returned, and that which is not me in all my ways and form, must rejoice in my obedience.

Sweet is the fountain of obedience! I am joy!

I am--

30.

Where there should have been nothing, there was pain.

There came a sensation like panic, then despair. A sense of flight aborted and the wailing of the mothers of stillborn. He made a noise that brought to mind the word *skittering*, as though he possessed too many legs, as though he was a spider. Except the sound didn't come from outside of him, but inside.

The pain showed itself to him. Not his head. He thought he might be hungover, though he didn't remember drinking. It was his back. His goddamned spine ached. Felt like he'd slept on a pair of scissors.

He wasn't supposed to be sleeping at all. He didn't remember sleeping. The afternoon was too full for anything like a nap. He'd promised Ashburn they would run over the disaster protocols. He had to log his weekly contact with

mission comm HQ. After he got off the round, he still had to meet Djen for the shift reports and tomorrow's duty roster. And maybe coffee later, after the business was done.

His heart shuddered in his chest just thinking about it. He was such an idiot.

Brett opened his eyes. He looked up at the pale brightness of the ceiling that wasn't his private quarters. He frowned, then remembered. He cursed.

"Doc, I think I just fucked up my image. I fell asleep. I didn't realize I was so tired. Is that going to be a problem?" He sat up grinning. "Please don't tell me we're going to have to do it again."

But Liston wasn't there. No one was there. The med bay was empty.

"Doc?"

The cart with the imaging unit had been wheeled away, he saw. Maybe the image took after all. Liston must have decided to let him sleep. The wily old bastard probably decided the pressure of command was getting to him and justified the nap as a recuperative measure.

Brett rubbed at the sore spot on his back. He'd have to talk to Liston later, give him a good natured undressing for promoting dereliction of duty.

He noticed that Liston wasn't the only one to receive an undressing. He was naked. The tile floor sent a chill up through his feet that made his calves ache.

What the hell?

"Dr. Liston?"

He found a clean shipsuit, underwear and socks, all neatly folded on the table beside the bed. There was a pair of boots on the floor. Brett put the clothing on quickly. It occurred to him that he might have been ill. That would explain a number of things. Maybe he'd been delirious.

Brett went to the door, but the sensors didn't seem to read him. It didn't open. He keyed the comm pad on the wall, but it didn't respond when he ordered it to break the seal. He punched the code three times with no results. Annoyed, he

toggled the comm port to order Cassandra to release the latch, but when he called to her, she didn't answer. He gave his order and his passcode anyway.

Nothing happened.

Cassandra wasn't answering. He didn't have to know exactly what had happened to understand that something was wrong. If Cassandra wasn't on line, it must be critically wrong.

He was going to have to force the door. That was fantastic. It could take hours if the seals were all intact.

Brett made his way toward the storage cabinets and searched them for something stout enough to wedge into cracks of the door. He found sheets and pillows, bottles of isopropyl alcohol, boxes of bandages, but nothing that resembled a pry bar. He was about to move to the cabinets on the other side of the room when the door to Liston's office opened.

Brett looked up, then frowned. "You're not Liston."

"No."

Ilam grinned at him, a stupid cow-eyed expression like he was the escort delegated to bring the guest of honor to a surprise party.

"Do you have the codes to unlock the med bay doors?"

"No, I can't say that I do, unless you count the pair of scissor jacks in the office. That's more than enough code if you ask me. You should have seen the devil of a time I had getting them to seal in the first place." Ilam continued to grin, but finally seemed to understand that Brett was not amused. "I'm sorry, Commander, I'd hoped to be in here when you awakened. To ease your transition, I mean. I'm afraid I nodded off."

Brett processed the information with something less than complete understanding. If Ilam had been left to watch over him, he must have been ill, and probably for quite some time. Liston wouldn't have left him unattended unless he absolutely had to.

"What time is it?" Brett asked.

"Three in the afternoon, relative station time."

He'd arrived at eleven for his image. Four hours wasn't long enough to explain the situation as it stood. And why the hell would they need scissor jacks to open the door? Scissor jacks were reserved only for a complete power grid failure because they destroyed the pressure seals. Brett winced at the possibilities.

"What day is it?"

Ilam waved him toward a stool set against the microscopy counter. "You should sit down."

"Just give me the damned date."

"19 March."

Brett dropped heavily into the seat he'd been offered. "That's almost three weeks. Have I been sick for three weeks?"

"More or less."

"What is that supposed to mean?"

"It's complicated."

"Then get Liston in here to explain it to me. You're not getting the job done ."

Ilam crossed his arms. His expression became hard. "Liston is dead."

Brett blinked at him. Once, then again. Nothing worth saying entered his mind.

"There are facts of which you are currently unaware, Commander. You will find that the situation has changed dramatically from what you expect. There is indeed an explanation, and you'll be provided with it in soon enough. But understand this first, I'm the only one who knows. The only one still alive. Not just in Persia, but on the entire planet. Do you comprehend what I'm saying to you?"

Brett nodded. "What happened?"

"Persia is gone. The project has failed. Most of our personnel are dead. You

ordered the rest, those who survived, into the Escape Module for evacuation. Those five are Vernon, Ashburn, Whitney, Djen and Attler. And me. I would have made six, but I disobeyed your direct order and stayed behind. To rescue you, you understand." Ilam retrieved a portable computer from the counter and passed it to Brett. "The complete record, including all the gory details you might want to know has been downloaded. You'll want to review it as you have time. You'll also want to be careful with it. There's sure to be an investigation when we get home, and that may be the only evidence that remains to support our story."

"When we get home?"

"It's in the documents. But we'll need to be moving soon. I've got the remote atmospheric devices functioning, but the heat exchange was almost a total loss. All the heat it can generate is being piped up here."

"What's the matter with Cassandra?" Something liquid froze in his stomach. Emily. "She should be managing the autonomic systems."

"You dismantled her, I'm afraid. She's beyond repair."

Brett sucked in a breath, then rose from the seat. Fear gave way to panic. "I have to go see."

But Ilam restrained him with a hand on his shoulder. "Sit down. You wouldn't get to the first hatch before you froze to death. Besides, Emily is fine. I've seen to that, already. What you hadn't already done, I mean." Then he smiled again. "I don't mind admitting when I'm wrong, Markus, not at a time like this. And I was wrong, though you don't remember. Would you like to see her?"

"Emily?"

It was too much. He didn't understand the things Ilam knew, how Ilam could know them. His knees folded. He was going to faint.

Ilam held him up with his powerful hand. With the other, he snatched the computer from Brett's hand before he dropped it. "Mind that equipment, Markus. I told you it's all we've got."

"I'm sorry."

"It's all right. More my fault than yours, really. It is as difficult for me to remember what you've forgotten as it is for you to try to grasp what's happened. I suspect you'll continue to feel a bit overwhelmed for a while yet."

"You said--about Emily. . ."

Ilam nodded. "It's a damned good thing about Emily, Brett. I would have been too late if it hadn't been for her. After I saw the others safely away, I was all over the station firing up the remote atmospheric devices. I thought you had a bit more time, you understand. If she hadn't begun to scream, I might have arrived too late. For both of you."

Brett didn't understand half of what he said. He wasn't really paying attention. "Where is she?"

Ilam led him across the bay. The green privacy curtain had been swept across the far portion of the room. When they reached it, Ilam parted it with his hand, but he stopped in the middle, blocking Brett's access.

"You'll need to be careful. She's fragile, Brett. You have experienced only the smallest taste of her disorientation. For you, the lost time is measured in days, and that's difficult enough to grasp. She's been out of time for the last five years. I've given her a sedative to help ease the transition◆an analogue for you, of course. I thought that would be best. She's been asking for you."

"How is that possible? Ilam, there are suppressions◆?"

Ilam waved off the question. "That isn't important. You'll understand when you read my report. For now, remember that it *is*, and that it's been a traumatic experience for both of you."

A voice, quiet but unmistakable, reached him. "Markus? Is that you?"

He shoved past Ilam. Against the wall was set a critical care isolation unit. The subdued fluorescent lights glowed from inside, through the plastisheen observation port. The displays were active, showing a variety of graphs and readouts and monitoring data. The hum of the internal atmosphere generator filled the air.

Brett stumbled toward it, almost lost his footing. He slumped against the heavy

rounded panels of the unit, peered into the wide observation plate.


And she was there.

Emily looked up at him as he studied her. Her eyes, clear and blue, brightened beneath half-closed lids. Her mouth crinkled into something like a smile. She was covered in a white blanket to her shoulders. Sensor wires were attached to her neck, their padded terminals ringed her skull, crossed the swell of her breast to monitor her heart. Long and flexible pseudo-metallic aircasts extended from each of her shoulders; a second set protruded from the bottom of the blanket attached to her thighs.

Brett's vision clouded. He tried to blink back the tears, but they fell, large and fat, against the glass.

"I'm here," he said. "I've missed you. . .so much."

"We had an accident," she said, but sounded uncertain. "Are you hurt?"

"I'm  I'm fine, Em. I've been worried about you."

"That gentlemen who was here earlier, the British one, he said we weren't in Atlanta. Is it really that bad?"

Brett laughed. He couldn't stop himself. "Irish. He's Irish."

"Is he a doctor?"

"I guess so."

Her smile widened. It was the most beautiful thing he'd seen in his life. "It doesn't matter. I think he slipped me a mickey. I'm very sleepy."

"You should rest. We'll talk later. For the rest of our lives, we'll talk."

"It feels like I haven't seen you in years. I don't want to sleep now."

Brett was aware of Ilam standing at his shoulder. "Rest now, Miss Rosette. It's better. You've sustained some damage to your extremities, and the nanomechs I've prescribed to repair the damage work more efficiently if you don't try to

move."

"My arms are numb. I think my legs are, too."

"You'll require some physical therapy."

Emily furrowed her brow. "Is this safe, doctor? I heard that nanomech therapy can be dangerous."

Ilam chuckled lightly. "You'll find that this particular therapy is a few generations more advanced than the ones you're familiar with. We've, ah, made a few strides that haven't achieved wide circulation. Administration approval and all that, you understand."

Emily studied him for a few moments, then turned her eyes to Brett. "Should I believe him?"

"I think so."

"All right, then. I'll take a little nap, but don't leave me, Markus. Stay right here. I want your face to be the first thing I see when I wake up."

The tears came again, bunching at the corner of his eyes. "I'll be here. I promise."

Her eyes closed and she was asleep within seconds.

Brett turned his head toward Ilam. "She'll be all right?"

"Better than she has been. The mechs will take a few days to fabricate her limbs. She'll have to learn to walk again. She'll have some trouble with fine motor movements as well. But she's fortunate. Limb replacement design and therapy has made considerable strides in the last five years. The hair was a much knottier problem. Those bastards at Palimpsest were nothing if not thorough, but she should have a good prickle going by late tomorrow. I couldn't very well deny the girl her vanity, could I?"

Brett didn't know what else to say. "She's going to be fine?"

"As good as new, or nearly so."

"And we're going home?"

"It will be difficult. I won't lie to you. While you were sleeping, I started loading the MUT. Supplies, atmosphere modules, all the fuel components I could scrounge. I think Malibu should be safe now, given their last status report, and we have good reason to believe their Escape Module is still intact. If not Malibu, then Gobi or Sahara. We'll try them all if we have to. With any luck at all, we'll make the same rescue rendezvous as the others. What a reunion that will be, eh? You'll have your hands full with all the introductions to your young. . .um, oh hell, your young bride. That's as good a description as any."

Brett mused over it, and it wasn't just good. It was perfect. He smiled.

Another thought entered his mind, one he did not understand. It seemed to come from a deep place, a well of experience buried inside himself. Its source he did not know, but the thought was precious, equally perfect.

I am joy.

END