

Rats of the System

PAUL McAULEY

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Paul J. McAuley (www.omegacom.demon.co.uk,) lives in London, England. He often writes hard SF, one of the group (along with Stephen Baxter, Peter Hamilton, Iain M. Banks, and others) responsible for the hard SF space opera renaissance of the 1990s. He has three collections of short fiction—The King of the Hill and Other Stories, The Invisible Country, and Little Machines. In 2001, he published two new novels—The Secret of Life, a hard SF near-future thriller, and Whole Wide World, a novel of high-tech intrigue; in 2004, White Devils, and in 2005, Mind's Eye, both SF thrillers. It is evident that in his novel writing he has moved away from space opera, which characterized his early books.

"Rats of the System" was published in Constellations. It is classic McAuley, good fun hard SF space opera: romance, and a battle with aliens.

Carter Cho was trying to camouflage the lifepod when the hunter-killer found him.

Carter had matched spin with the fragment of shattered comet nucleus, excavated a neat hole with a judicious burn of the lifepod's motor and eased the sturdy little ship inside; then he had sealed up his p-suit and clambered out of the airlock, intending to hide the pod's infrared and radar signatures by covering the hole with fullerene superconducting cloth. He was trying to work methodically, clamping clips to the edge of the cloth and spiking the clips deep into the slumped rim of dirty water ice, but the cloth, forty meters square and just sixty carbon atoms thick, massed a little less than a butterfly's wing, and it fluttered and billowed like a live thing as gas and dust vented from fractured ice. Carter had fastened down less than half of it when the scientist shouted, "Heads up! Incoming!"

That's when Carter discovered she'd locked him out of the pod's control systems.

He said, "What have you done?"

"Heads up! It's coming right at us!"

The woman was hysterical.

Carter looked up.

The sky was apocalyptic. Pieces of comet nucleus were tumbling away in every direction, casting long cones of shadow through veils and streamers of gas lit by the red dwarf's half-eclipsed disc. The nucleus had been a single body ten kilometers long before the Fanatic singleship had cut across its orbit and carved it open and destroyed the science platform hidden inside it with X-ray lasers and kinetic bomblets. The singleship had also deployed a pod of hunter-killer drones, and after crash deceleration these were falling through the remains of the comet, targeting the flotsam of pods and cans and general wreckage that was all that remained of the platform. Carter saw a firefly flash and gutter in the sullen wash of gases, and then another, almost ninety degrees away. He had almost forgotten his fear while he'd been working, but now it flowed through him again, electric and strong and urgent.

He said, "Give me back my ship."

The scientist said, "I'm tracking it on radar! I think it's about to—"

The huge slab of sooty ice shuddered. A jet of dust and gas boiled up beyond a sharp-edged horizon, and something shot out of the dust, heading straight for Carter. It looked a little like a silvery squid, with a bullet-shaped head that trailed a dozen tentacles tipped with claws and blades. It wrapped itself around an icy pinnacle on the other side of the hole and reared up, weaving this way and that as if studying him. Probably trying to decide where to begin unseaming him, Carter thought, and pointed the welding pistol at it, ready to die if only he could take one of the enemy with him. The thing surged forward—

Dust and gas blasted out of the hole. The scientist had ignited the lifepod's motor. The fullerene cloth shot straight up, straining like a sail in a squall, and the hunter-killer smashed into it and tore it free from the clips Carter had so laboriously secured, tumbling past him at the center of a writhing knot of cloth.

Carter dove through the hatch in the pod's blunt nose. Gravity's ghost clutched him, and he tumbled head over heels and slammed into the rear bulkhead as the pod shook free of its hiding place.

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Humans had settled the extensive asteroid belt around Keid, the cool K1 component of the triple star system 40 Eridani, more than a century ago. The first generation, grown from templates stored in a bus-sized seeder starship, had built a domed settlement on Neuvo California, an asteroid half the size of Earth's Moon, and planted its cratered plains of water ice with vast fields of vacuum organisms. Succeeding generations spread through Keid's asteroid belt, building domes and tenting crevasses and ravines, raising families, becoming expert in balancing the ecologies of small, closed systems and creating new varieties of vacuum organisms, writing and performing heroic operettas, trading information and works of art on the interstellar net that linked Earth's far-flung colonies in the brief golden age before Earth's AIs achieved transcendence.

The Keidians were a practical, obdurate people. As far as they were concerned, the Hundred Minute War, which ended with the reduction of Earth and the flight of dozens of Transcendent AIs from the Solar System, was a distant and incomprehensible matter that had nothing to do with the ordinary business of their lives. Someone wrote an uninspired operetta about it; someone else revived the lost art of the symphony, and for a few years her mournful eight-hour memorial was considered by many in the stellar colonies to be a new pinnacle of human art. Very few Keidians took much notice when a Transcendent demolished Sirius B and used the trillions of tons of heavy elements it mined from the white dwarf's core to build a vast ring in close orbit around Sirius A; no one worried overmuch when other Transcendents began to strip-mine gas giants in other uninhabited systems. Everyone agreed that the machine intelligences were pursuing some vast, obscure plan that might take millions of years to complete, that they were as indifferent to the low comedy of human life as gardeners were to the politics of ants.

But then self-styled transhuman Fanatics declared a jihad against anyone who refused to acknowledge the Transcendents as gods. They dropped a planet-killer on half-terraformed Mars. They scorched colonies on the moons of Jupiter and Saturn and Neptune. They dispatched warships starward. The fragile web of chatter and knowledge-based commerce that linked the stellar colonies began to unravel.

And just over six hundred days ago, a Transcendent barreled into the Keidian system, swinging past Keid as it decelerated from close to light speed and arcing out toward the double system of white and red dwarf stars just four hundred AU beyond. The red dwarf had always been prone to erratic flares, but a few days after the Transcendent went into orbit around it, the dim little star began to flare brightly and steadily from one of its poles. A narrowly focussed jet of matter and energy began to spew into space, and some of the carbon-rich starstuff was spun into sails with the surface area of planets, hanging hundreds of thousands of kilometers beyond the star yet somehow coupled to its center of gravity. Pinwheeling of the jet and light pressure on the vast sails tipped the star through ninety degrees, and then

the jet burned even brighter, and the star began to move out of its orbit.

A hundred days after that, the Fanatics arrived, and the war of the 40 Eridani system began.

* * * * *

The scientist said, "The hunter-killers found us. We had to outrun them."

Carter said, "I was ready to make a stand." The scientist glared at him with her one good eye and said, "I'm not prepared to sacrifice myself to take out a few drones, Mr. Cho. My work is too important."

She might be young and scared and badly injured, but Carter had to admit that she had stones. When the singleship struck, Carter had been climbing into a p-suit, getting ready to set up a detector array on the surface of the comet nucleus. She had been the first person he'd seen after he'd kicked out of the airlock. He'd caught her and dragged her across twenty meters of raw vacuum to a lifepod that had spun loose from the platform's broken spine, and installed her in one of the pod's hibernation coffins. She'd been half-cooked by reflected energy of the X-ray laser beam that had bisected the main section of the science platform; one side of her face was swollen red and black, the eye there a blind white stone, hair like shriveled peppercorns. The coffin couldn't do much more than give her painblockers and drip glucose-enriched plasma into her blood. She'd die unless she went into hibernation, but she wouldn't allow that because, she said, she had work to do.

Her coffin was one of twenty stacked in a neat five by four array around the inner wall of the lifepod's hull. Carter Cho hung in the space between her coffin and the shaft of the motor, a skinny man with prematurely white hair in short dreads that stuck out in spikes around his thin, sharp face as if he'd just been wired to some mains buss. He said, "This is my ship. I'm in charge here."

The scientist stared at him. Her good eye was red with an eightball hemorrhage, the pupil capped with a black data lens. She said, "I'm a second lieutenant, sailor. I believe I outrank you."

"The commissions they handed out to volunteers like you don't mean anything."

"I volunteered for this mission, Mr. Cho, because I want to find out everything I can about the Transcendent. Because I believe that what we can learn from it will help defeat the Fanatics. I still have work to do, sailor, and that's why I must decide our strategy."

"Just give me back control of my ship, okay?" She stared through him. He said, "Just tell me what you did. You might have damaged something."

"I wrote a patch that's sitting on top of the command stack; it won't cause any damage. Look, we tried hiding from the hunter-killers, and when that didn't work, we had to outrun them. I can appreciate why you wanted to make a stand. I can even admire it. But we were outnumbered, and we are more important than a few drones. War isn't a matter of individual heroics; it's a collective effort. And as part of a collective, every individual must subsume her finer instincts to the greater good. Do you understand?"

"With respect, ma'am, what I understand is that I'm a sailor with combat experience and you're a science geek." She was looking through him again, or maybe focussing on stuff fed to her retina by the data lens. He said, "What kind of science geek are you, anyway?"

"Quantum vacuum theory." The scientist closed her eye and clenched her teeth and gasped, then said, her voice smaller and tighter, "I was hoping to find out how the Transcendent manipulates the magnetic fields that control the jet."

"Are you okay?"

"Just a little twinge."

Carter studied the diagnostic panel of the coffin, but he had no idea what it was trying to tell him. "You should let this box put you to sleep. When you wake up, we'll be back at Pasadena, and they'll fix you right up."

"I know how to run the lifepod, and as long as I have control of it, you can't put me to sleep. We're still falling along the comet's trajectory. We're going to eyeball the Transcendent's engineering up close. If I can't learn something from that, I'll give you permission to boot my ass into vacuum, turn around, and go look for another scientist."

"Maybe you can steer this ship, ma'am, but you don't have combat training."

"There's nothing to fight. We outran the hunter-killers."

Carter said, "So we did. But maybe you should use the radar, check out the singleship. Just before you staged your little mutiny, I saw that it was turning back. I think it's going to try to hunt us down."

* * * * *

Carter stripped coffins and ripped out panels and padding from the walls. He disconnected canisters of the accelerant foam that flooded coffins to cradle hibernating sleepers. He pulled a dozen spare p-suits from their racks. He sealed the scientist's coffin and suited up and vented the lifepod and dumped everything out of the lock.

The idea was that the pilot of the singleship would spot the debris, think that the pod had imploded, and abandon the chase. Carter thought there was a fighting chance it would work, but when he had told her what he was going to do, the scientist had said, "It won't fool him for a moment."

Carter said, "Also, when he chases after us, there's a chance he'll run into some of the debris. If the relative velocity is high enough, even a grain of dust could do some serious damage."

"He can blow us out of the sky with his X-ray laser. So why would he want to chase us?"

"For the same reason the hunter-killer didn't explode when it found us. Think it through, ma'am. He wants to take a prisoner. He wants to extract information from a live body."

He watched her think about that.

She said, "If he does catch up with us, you'll get your wish to become a martyr. There's enough antiberyllium left in the motor to make an explosion that'll light up the whole system. But that's a last resort. The singleship is still in turnaround, we have a good head start, and we're only twenty-eight million kilometers from perihelion. If we get there first, we can whip around the red dwarf, change our course at random. Unless the Fanatic guesses our exit trajectory, that'll buy us plenty of time."

"He'll have plenty of time to find us again. We're a long way from home, and there might be other—"

"All we have to do is live long enough to find out everything we can about the Transcendent's engineering project and squirt it home on a tight beam." The scientist's smile was dreadful. Her teeth were filmed with blood. "Quit arguing, sailor. Don't you have work to do?"

A trail of debris tumbled away behind the pod, slowly spreading out, bright edges flashing here and there as they caught the light of the red dwarf. Carter pressurized p-suits and switched on their life-support systems and transponders before he jettisoned them. Maybe the Fanatic would think that they contained

warm bodies. He sprayed great arcs of foam into the hard vacuum and kicked away the empty canisters. The chance of any of the debris hitting the Fanatic's singleship was infinitesimally small, but a small chance was better than none at all, and the work kept his mind from the awful prospect of being captured.

Sternward, the shattered comet nucleus was a fuzzy speck trailing foreshortened banners of light across the star-spangled sky. The expedition had nudged it from its orbit and buried the science platform inside its nucleus, sleeping for a whole year like an army in a fairytale as it fell toward the red dwarf. The mission had been a last desperate attempt to try to learn something of the Transcendent's secrets, but as the comet nucleus neared the red dwarf, and the expedition woke and the scientists started their work, one of the Fanatic drones that policed the vicinity of the star somehow detected the science platform, and the Fanatics sent a single-ship to deal with it. Like all their warships, it moved very fast, with brutal acceleration that would have mashed ordinary humans to a thin jelly. It had arrived less than thirty seconds behind a warning broadcast by a spotter observatory at the edge of Keid's heliopause; the crew of the science platform hadn't stood a chance.

The singleship lay directly between the comet and the lifepod now. It had turned around and was decelerating at eight gravities. At the maximum magnification his p-suit's visor could give him, Carter could just make out the faint scratch of its exhaust, but he was unable to resolve the ship itself. In the other direction, the red dwarf star simmered at the bottom of a kind of well of luminous dark. Its nuclear fires were banked low, radiating mostly in infrared. Carter could stare steadily at it with only a minimum of filtering. The sharp-edged shadows of the vast deployment of solar sails were sinking beyond one edge as the jet dawned in the opposite direction, a brilliant white thread brighter than the fierce point of the white dwarf star rising just beyond it. Before the Transcendent had begun its work, the red dwarf had swung around the smaller but more massive white dwarf in a wide elliptical orbit, at its closest approaching within twenty AU, the distance of Uranus from the Sun. Now it was much closer and still falling inward. Scientists speculated that the Transcendent planned to use the tidal effects of a close transit to tear apart the red dwarf, but they'd had less than forty hours to study the Transcendent's engineering before the Fanatic's singleship struck.

Hung in his p-suit a little way from the lifepod, the huge target of the red dwarf in one direction, the vast starscape in the other, Carter Cho resolved to make the best of his fate. The Universe was vast and inhuman, and so was war. Out there, in battles around stars whose names—Alpha Cen-tauri, Epsilon Eridani, Tau Ceti, Lalande 21185, Lacaille 8760, 61 Cygni, Epsilon Indi, Groombridge 1618, Groombridge 34, 82 Eridani, 70 Ophiuchi, Delta Pavonis, Eta Cassiopeiae—were like a proud roll call of mythic heroes, the fate of the human race was being determined. While Carter and the rest of the expedition had slept in their coffins deep in the heart of the comet, the Fanatics had invested and destroyed a dozen settlements in Keid's asteroid belt, and the Keidians had fought back and destroyed one of the Fanatics' huge starships. Compared to this great struggle, Carter's fate was less than that of a drop of water in a stormy ocean, a thought both humbling and uplifting.

Well, his life might be insignificant, but he wasn't about to trust it to a dying girl with no combat experience. He fingertip-swam to the stern of the pod, and opened a panel and rigged a manual cutout before he climbed back inside. He had been working for six hours. He was exhausted and sweating hard inside the p-suit, but he couldn't take it off because the pod's atmosphere had been vented and most of its systems had been shut down, part of his plan to fool the Fanatic into thinking it was a dead hulk. The interior was dark and cold. The lights either side of his helmet cast sharp shadows. Frost glistened on struts exposed where he had stripped away paneling.

The scientist lay inside her sealed coffin, her half-ruined face visible through the little window. She looked asleep, but when Carter maneuvered beside her she opened her good eye and looked at him. He plugged in a patch cord and heard some kind of music, a simple progression of riffs for percussion and

piano and trumpet and saxophone. The scientist said that it was her favorite piece. She said that she wanted to listen to it one more time.

Carter said, "You should let the coffin put you to sleep. Before—"

The scientist coughed wetly. Blood freckled the faceplate of her coffin. "Before I die."

"They gave me some science training before they put me on this mission, ma'am. Just tell me what to do."

"Quit calling me 'ma'am,'" the scientist said, and closed her good eye as a trumpet floated a long, lovely line of melody above a soft shuffle of percussion. "Doesn't he break your heart? That's Miles Davis, playing in New York hundreds of years ago. Making music for angels."

"It's interesting. It's in simple six/eight time, but the modal changes—" The scientist was staring at Carter; he felt himself blush and wondered if she could see it. He said, "I inherited perfect pitch from my mother. She sang in an opera chorus before she married my father and settled down to raise babies and farm vacuum organisms."

"Don't try to break it down," the scientist said. "You have to listen to the whole thing. The totality, it's sublime. I'd rather die listening to this than die in hibernation."

"You're not going—"

"I've set down everything I remember about the work that was done before the attack. I'll add it to the observations I make as we whip around the star and then squirt all the data to Keid. Maybe they can make something useful of it, work out the Transcendent's tricks with the magnetic fields, the gravity tethers, the rest of it..." She closed her eye, and breathed deeply. Fluid rattled in her lungs. She said softly, as if to herself, "So many dead. We have to make their deaths worthwhile."

Carter had barely gotten to know his shipmates, recruited from all over, before they'd gone into hibernation, but the scientist had lost good friends and colleagues.

He said, "The singleship is still accelerating."

"I know."

"It could catch us before we reach the star."

"Maybe your little trick will fool it."

"I might as well face up to it with a pillow."

The scientist smiled her ghastly smile. She said, "We have to try. We have to try everything. Let me explain what I plan to do at perihelion."

She told Carter that observations by drones and asteroid-based telescopes had shown that the Transcendent had regularized the red dwarf's magnetic field, funneling plasma toward one point on photosphere, where it erupted outward in a permanent flare—the jet that was driving the star toward its fatal rendezvous at the bottom of the white dwarf's steep gravity well. The scientist believed that the Transcendent was manipulating the vast energies of the star's magnetic field by breaking the symmetry of the seething sea of virtual particular pairs that defined quantum vacuum, generating charged particles *ab ovo*, redirecting plasma currents and looped magnetic fields with strengths of thousands of gauss and areas of thousands of kilometers as a child might play with a toy magnet and a few iron filings. The probe she'd loaded with a dozen experiments had been lost with the science platform, but she thought that there

was a way of testing at least one prediction of her theoretical work on symmetry breaking.

She opened a window in Carter's helmet display, showed him a schematic plot of the slingshot maneuver around the red dwarf.

Carter said, "You have to get that close?"

"The half-life of the strange photons will be very short, a little less than a millisecond."

"I get it. They won't travel much more than a few hundred kilometers before they decay." Carter grinned when the scientist stared at him. He said, "Speed of light's one of those fundamental constants every sailor has to deal with."

"It means that we have to get close to the source, but it also means that the photon flux will increase anomalously just above the photosphere. There should be a sudden gradient, or a series of steps... It was one of the experiments my probe carried."

Carter said, "But it was destroyed, so we have to do the job instead. It's going to get pretty hot, that close to the star. What kind of temperatures are we talking about?"

"I don't know. The average surface temperature of the red dwarf is relatively cool, a little over 3000 degrees Kelvin, but it's somewhat hotter near the base of the flare, where we have to make our pass."

"Why don't we just skim past the edge of the flare itself? The flare might be hotter than the surface, but our transit time would be a whole lot less."

"The magnetic fields are very strong around the flare, and they spiral around it. They could fling us in any direction. Outward if we're lucky, into the star if we're not. No, I'm going to aim for a spot where the field lines all run in the same direction. But the fields can change direction suddenly, and there's the risk of hitting a stray plume of plasma, so I can't fire up the motors until we're close."

Carter thought of his cutout. He said, "If you have to hit a narrow window, I'm your man. I can put this ship through the eye of a needle."

The scientist said, "As soon as I see the chance, I'll fire full thrust to minimize transit time."

"But without the thermal protection of the comet nucleus it'll still be a lot worse than waving your hand through a candle flame. I suppose I can set up a barbecue-mode rotation, run the cooling system at maximum. Your box will help keep you safe, and I'll climb into one too, but if the temperature doesn't kill us, the hard radiation flux probably will. You really think you can learn something useful?"

"This is a unique opportunity, sailor. It's usually very difficult to study Transcendent engineering because they keep away from star systems that have been settled. Some of us think that the Hundred Minute War was fought over the fate of the human race, that the Transcendents who won the war and quit the Solar System believe that we should be left alone to get on with our lives."

"But this one didn't leave us alone."

"Strictly speaking, it did. Forty Eridani B and C, the white dwarf and the red dwarf, are a close-coupled binary. Keid is only loosely associated with them. And they're a rare example of the kind of binary the Transcendents are very interested in, one in which the masses of the two components are very different. We have a unique opportunity to study stellar engineering up close. The Fanatics know this, which is why they're so keen to destroy anything which comes too close."

"They want to keep the Transcendents' secrets secret."

"They're not interested in understanding the Transcendents, only in worshiping them. They are as fixed and immutable as their belief system, but we're willing to learn, to take on new knowledge and change and evolve. That's why we're going to win this war."

* * * * *

Following the scientist's instructions, Carter dismantled three cameras and rejiggered their imaging circuits into photon counters. While he worked, the scientist talked about her family home in Happy Valley on Neuvo California. It had been badly damaged in one of the first Fanatic attacks, and her parents and her three brothers had helped organize the evacuation. Her mother had been an ecosystem designer, and her father had been in charge of the government's program of interstellar commerce; they were both in the war cabinet now.

"And very proud and very unhappy that their only daughter volunteered for this mission."

Carter said that his family were just ordinary folks, part of a cooperative that ran a vacuum organism farm on the water-and methane-ice plains of San Joaquin. He'd piloted one of the cooperative's tugs and had volunteered for service in the Keidian defense force as soon as the war against the Fanatics began, but he didn't want to talk about the two inconclusive skirmishes in which he'd been involved before being assigned to the mission. Instead, he told the scientist about his childhood and the tented crevasse that was his family home, and the herds of engineered rats he'd helped raise.

"I loved those rats. I should have been smart enough to stay home, raise rats and make babies, but instead I thought that the bit of talent I have for math and spatial awareness was my big ticket out."

"Shit," the scientist said. "The singleship just passed through your debris field."

She opened a window and showed Carter the radar plot.

He felt a funny floating feeling that had nothing to do with free fall. He said, "Well, we tried."

"I'm sure it won't catch up with us before we reach the star."

"If we make that burn now—"

"We'll miss the chance to collect the photon data. We're going to die whatever we do, sailor. Let's make it worthwhile."

"Right."

"Why did you like them? The rats."

"Because they're survivors. Because they've managed to make a living from humans ever since we invented agriculture and cities. Back on Earth, they were a vermin species, small and tough and smart and fast-breeding, eating the same food that people ate, even sharing some of the same diseases and parasites. We took them with us into space because those same qualities made them ideal lab animals. Did you know that they were one of the first mammal species to have their genome sequenced? That's why there are so many gengineered varieties. We mostly bred them for meat and fur and biologicals, but we also raised a few strains that we sold as pets. When I was a little kid, I had a ruffled piebald rat that I loved as much as any of my sisters and brothers. Charlie. Charlie the rat. He lived for more than a thousand days, an awfully venerable age for a rat, and when he died I wouldn't allow him to be recycled. My father helped me make a coffin from offcuts of black oak, and I buried him in a glade in my favorite

citrous forest..."

The scientist said, "It sounds like a nice spot to be buried."

Carter said, "It's a good place. There are orchards, lots of little fields. People grow flowers just for the hell of it. We have eighteen species of mammals roaming about. All chipped of course, but they give you a feeling of what nature must have been like. I couldn't wait to get out, and now I can't wait to get back. How dumb is that?"

The scientist said, "I'd like to see it. Maybe you could take me on a picnic, show me the sights. My family used to get together for a picnic every couple of hundred days. We'd rent part of one of the parklands, play games, cook way too much food, smoke and drink..."

"My father, he's a pretty good cook. And my mother leads a pretty good choral group. We should all get together."

"Absolutely."

They smiled at each other. It was a solemn moment. Carter thought he should say something suitable, but what? He'd never been one for speeches, and he realized now that although the scientist knew his name—it was stitched to his suit—he didn't know hers.

The scientist said, "The clock's ticking."

Carter said, "Yes, ma'am. I'll get this junk fixed up, and then I'll be right back."

He welded the photon detectors to the blunt nose of the pod and cabled them up. He prepped the antenna array. After the pod grazed the base of the flare, its computer would compress the raw data and send it in an encrypted squawk aimed at Keid, repeating it as long as possible, repeating it until the Fanatic singleship caught up. It was less than ten thousand kilometers behind them now. Ahead, the red dwarf filled half the sky, the jet a slender white thread rooted in patch of orange and yellow fusion fire, foreshortening and rising above them to infinity as they drove toward it. Carter said that its base looked like a patch of fungal disease on an apple, and the scientist told him that the analogy wasn't farfetched; before the science platform had been destroyed, one of the research groups had discovered that there were strange nuclear reactions taking place there, forming tons of carbon per second. She showed him a picture one of the pod's cameras had captured: a rare glimpse of the Transcendent, It was hard to see against the burning background of the star's surface because it was a perfectly reflective sphere.

"Exactly a kilometer across," the scientist said, "orbiting the equator every eight minutes. It's thought they enclose themselves in bubbles of space where the fundamental constants have been altered to enhance their cognitive processes. This one's a keeper. I'll send it back—"

A glowing line of gas like a burning snake thousands of kilometers long whipped past. The pod shuddered, probably from stray magnetic flux.

Carter said, "I should climb inside before I start to cook."

The scientist said, "I have to fire up the motor pretty soon." Then she said, "Wait."

Carter waited, hung at the edge of the hatch.

The scientist said, "You switched on the antenna array."

"Just long enough to check it out."

"Something got in. I think a virus. I'm trying to firewall, but it's spreading through the system. It already has the motor and nav systems—"

"I also have control of the com system," another voice said. It was light and lilting. It was as sinuous as a snake. It was right inside Carter's head. "Carter Cho. I see you, and I know you can hear me."

The scientist said, "I can't fire the motor, but I think you can do something about that, sailor."

So she'd known about the cutout all along. Carter started to haul himself toward the stern.

The voice said, "Carter Cho. I will have complete control of your ship shortly. Give yourself to us."

Carter could see the singleship now, a flat triangle at the tip of a lance of white flame. It was only seconds away. He flipped up the panel, plugged in a patch cord. Sparse lines of data scrolled up in a window. He couldn't access the scientist's flight plan, had no nav except line-of-sight and seat-of-the-pants. He had to aim blind for the base of the flare and hope he hit that narrow window by luck, came in at just the right angle, at just the right place where parallel lines of magnetic force ran in just the right direction...

"Carter Cho. I have taken control. Kill the woman and give yourself to us, and I promise that you will live with us in glory."

... Or he could risk a throw of the dice. Carter ran a tether from his p-suit utility belt to a nearby bolt and braced himself against a rung. With his helmet visor almost blacked out, he could just about look at the surface of the star rushing toward him, could see the intricate tangles of orderly streams that fed plasma into the brilliant patch of fusion fire at the base of the jet.

"Kill her, or I will strip your living brain neuron by neuron."

"Drop dead," Carter said, and switched off his com. The jet seemed to rise up to infinity, a gigantic sword that cut space in two. The scientist had said that if the pod grazed the edge of the jet, spiraling magnetic fields would fling it into the sky at a random vector. And the star took up half the sky...

Fuck it, Carter thought. He'd been lucky so far. It was time to roll the dice one more time, hope his luck still held.

He fired attitude controls and aimed the blunt nose of the pod. A menu window popped up in front of his face. He selected *burn* and *full thrust*.

Sudden weight tore at his two-handed grip on the rung as the motor flared. It was pushing a shade under a gee of acceleration; most humans who had ever lived had spent their entire lives in that kind of pull, but Carter's fingers were cramping inside the heavy gloves, and it felt as if the utility belt were trying to amputate him at the waist. The vast dividing line of the jet rushed toward him. Heat beat through his p-suit. If its cooling system failed for a second, he'd cook like a joint of meat in his father's stone oven. Or the Fanatic could burn him out of the sky with its X-ray laser, or magnetic flux could rip the pod apart...

Carter didn't care. He was riding his ship rodeo-style toward a flare of fusion light a thousand kilometers wide. He whooped with defiant glee—

—and then, just like that, the pod was somewhere else.

After a minute, Carter remembered to switch on his com. The scientist said, "What the fuck did you just do?"

* * * * *

It took them a while to find out.

Carter had aimed the pod at the edge of the jet, hoping that it would be flung away at a random tangent across the surface of the red dwarf, hoping that it would survive long enough to transmit all of the data collected by the scientist's experiment. But now the red dwarf was a rusty nailhead dwindling into the starscape behind them, the bright point of the white dwarf several seconds of arc beyond it. In the blink of an eye, the pod had gained escape velocity and had been translated across tens of millions of kilometers of space.

"It had to be the Transcendent," the scientist said.

Carter had repressurized the pod and the cooling system was working at a flat roar, but it was still as hot as a sauna. He had taken off his helmet and shaken out his sweat-soaked dreadlocks, but because the scientist's burns made her sensitive to heat, her coffin was still sealed. He hung in front of it, looking at her through the little window. He said, "I took the only chance we had left, and my luck held."

"No magnetic field could have flung us so far, or so fast. It had to be something to do with the Transcendent. Perhaps it canceled our inertia. For a few seconds we became as mass-less as a photon, we achieved light speed..."

"My luck held," Carter said. "I hit those magnetic fields just right."

"Check the deep radar, sailor. There's no sign of the Fanatic's singleship. It was right on our tail. If magnetic fields had anything to do with it, it would have been flung in the same direction as us."

Carter checked the deep radar. There was no sign of the singleship. He remembered the glimpse of the silver sphere sailing serenely around the star, and said, "I thought the Transcendents wanted to leave us alone. That's why they quit the Solar System. That's why they only reengineer uninhabited systems..."

"You kept rats when you were a kid. If one got out, you'd put her back. If two started to fight, you'd do something about it. How did your rats feel when you reached into their cage to separate them?"

Carter grinned. "If we're rats, what are the Fanatics?"

"Rats with delusions of grandeur. Crazy rats who think they're carrying out God's will, when really they're no better than the rest of us. I wonder what that Fanatic must be thinking. Just for a moment, he was touched by the hand of his God..."

"What is it?"

"I've finished processing the data stream from my experiment. When we encountered the edge of the flare, there was a massive, sudden increase in photon flux."

"Because of this symmetry breaking thing of yours. Have you sent the data?"

"Of course, we have to figure the details."

"Send the data," Carter said, "and I'll button up the ship and put us to sleep."

"Perhaps there are some clues in the decay products..."

"You've completed your mission, ma'am. Let someone else worry about the details."

"Jesswyn Fiver," the scientist said. She was smiling at him through her little window. For a moment he saw how pretty she'd been. "You never did ask my name. It's Jesswyn Fiver. Now you can introduce me to your parents when we go on that picnic."