

DOWN & OUT ON ELLFIVE PRIME

Dean Ing



Dean Ing is an engineer turned writer, now principally in the best-selling subcategory of "techno-thrillers," whose science fiction of the seventies and early eighties epitomizes the high-tech, Campbellian, problem-solving mode of hard science fiction in direct descent from Robert A. Heinlein's *Astounding* stories of the forties and Poul Anderson's of the fifties (for instance "The Man Who Counts" [1958], later in book form as *War of the Wing-Men*). This strain of hard sf is about men in science-fictional environments who use their wits and knowledge to find a way, especially to build a way, out of their predicaments—sometimes by using their superior managerial skills. This strain is specifically in opposition to the space adventure or science fantasy story in which the hero wins through because he is tough and smart and possesses military virtues (although there are many mixed examples of hard sf adventure). It privileges scientific and technological knowledge over bravery and strength. Two stereotypical characters usually appear, the free man (pioneer/outsider/freelancer/con-man) and the good manager (often a character in the story but sometimes represented by the narrative voice/persona), and although the free man always wins, good management triumphs (it is a win-win scenario). This form is a parable that reconciles the free man and society.

Hard science fiction admires a good boss, just as it does a good scientist or engineer, knowing that on some level the builders and creators are self-absorbed, if not selfish, and that someone must impose limits on them so that a social structure can exist, but without restricting their freedom. This is the utopian dream of the scientific and engineering community, the dream of the ideal administrator who would interface between them and the rest of society so that they need not yield to the necessity of learning how to be socially adjusted adults among normal people. Their creative freedom, often indistinguishable from adolescent rebellion, requires a parental figure to react against and to take care of them in emergencies.

"Down & Out on Ellfive Prime" is a story of space pioneers on the new frontier taming a hostile environment that threatens their survival. It is a utopian allegory, of the lineage of Heinlein's "It's Great to Be Back," envisioning a better society on the future frontier. It is also an interesting contrast to George Turner's "In a Petri Dish Upstairs," which portrays some of the darker sides of the space-colony enterprise.

Responding to Almquist's control, the little utility tug wafted from the North dock port and made its gentle pirouette. Ellfive Prime Colony seemed to fall away. Two hundred thousand kilometers distant, blue-white Earth swam into view: cradle of mankind, cage for too many. Almquist turned his long body in its cushions and

managed an obligatory smile over frown lines. "If that won't make you homesick, Mr. Weston, nothing will."

The fat man grunted, looking not at the planet he had deserted but at something much nearer. From the widening of Weston's eyes, you could tell it was something big, closing fast. Torin Almquist knew what it was; he eased the tug out, watching his radar, to give Weston the full benefit of it.

When the tip of the great solar mirror swept past, Weston blanched and cried out. For an instant, the view port was filled with cables and the mirror pivot mechanism. Then once again there was nothing but Earth and sharp pinpricks of starlight. Weston turned toward the engineering manager, wattles at his jawline trembling. "Stupid bastard," he grated. "If that'll be your standard joke on new arrivals, you must cause a lot of coronaries."

Abashed, disappointed: "A mirror comes by every fourteen seconds, Mr. Weston. I thought you'd enjoy it. You asked to see the casting facility, and this is where you can see it best. Besides, if you were retired as a heart case, I'd know it." *And the hell with you*, he added silently. Almquist retreated into an impersonal spiel he knew by heart, moving the tug back to gain a panorama of the colony with its yellow legend, *L-5'*, proud and unnecessary on the hull. He moved the controls gently, the blond hairs on his forearm masking the play of tendons within.

The colony hung below them, a vast shining melon the length of the new Hudson River Bridge and nearly a kilometer thick. Another of its three mirror strips, anchored near the opposite South end cap of Ellfive Prime and spread like curved petals toward the sun, hurtled silently past the view port. Almquist kept talking. ". . . Prime was the second industrial colony in space, dedicated in 2007. These days it's a natural choice for a retirement community. A fixed population of twenty-five hundred—plus a few down-and-out bums hiding here and there. Nowhere near as big a place as Orbital General's new industrial colony out near the asteroid belt."

Almquist droned on, backing the tug farther away. Beyond the South end cap, a tiny mote sparkled in the void, and Weston squinted, watching it. "The first Ellfive was a General Dynamics-Lever Brothers project in close orbit, but it got snuffed by the Chinese in 2012, during the war."

"I was only a cub then," Weston said, relaxing a bit. "This colony took some damage too, didn't it?"

Almquist glanced at Weston, who looked older despite his bland flesh. Well, living Earthside with seven billion people tended to age you. "The month I was born," Almquist nodded, "a nuke was intercepted just off the centerline of Ellfive Prime. Thermal shock knocked a tremendous dimple in the hull; from inside, of course, it looked like a dome poking up through the soil south of center."

Weston clapped pudgy hands, a gesture tagging him as neo-Afrikaner. "That'll be the hill, then. The one with the pines and spruce, near Hilton Prime?"

A nod. "Stress analysts swore they could leave the dimple if they patched the hull around it. Cheapest solution—and for once, a pretty one. When they finished bringing new lunar topsoil and distributing it inside, they saw there was enough dirt on the slope for spruce and ponderosa pine roots. To balance thousands of tons of new processed soil, they built a blister out on the opposite side of the hull and moved some heavy hardware into it."

The fat man's gaze grew condescending as he saw the great metal blister roll into view like a tumor on the hull. "Looks slapdash," he said.

"Not really; they learned from DynLever's mistakes. The first Ellfive colony was a cylinder, heavier than an ellipsoid like ours." Almquist pointed through the view port. "DynLever designed for a low ambient pressure without much nitrogen in the

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cylinder and raised hell with water transpiration and absorption in a lot of trees they tried to grow around their living quarters. I'm no botanist, but I know Ellfive Prime has an Earthside ecology—the same air you'd breathe in Peru, only cleaner. We don't coddle our grass and trees, and we grow all our crops right in the North end cap below us."

Something new and infinitely pleasing shifted Weston's features. "You used to have an external crop module to feed fifty thousand people, back when this colony was big in manufacturing—"

"Sold it," Almquist put in. "Detached the big rig and towed it out to a belt colony when I was new here. We didn't really need it anymore—"

Weston returned the interruption pointedly: "You didn't let me finish. I put that deal over. OrbGen made a grand sum on it—which is why the wife and I can retire up here. One hand washes the other, eh?"

Almquist said something noncommittal. He had quit wondering why he disliked so many newcomers. He *knew* why. It was a sling-cast irony that he, Ellfive Prime's top technical man, did not have enough rank in OrbGen to be slated for colony retirement. Torin Almquist might last as Civil Projects Manager for another ten years, if he kept a spotless record. Then he would be Earthsided in the crowds and smog and would eat fish cakes for the rest of his life. Unlike his ex-wife, who had left him to teach in a belt colony so that she would never have to return to Earth. And who could blame her? *Shit.*

"I beg your pardon?"

"Sorry; I was thinking. You wanted to see the high-g casting facility? It's that sphere strapped on to the mirror that's swinging toward us. It's moving over two hundred meters per second, a lot faster than the colony floor, being a kilometer and a half out from the spin axis. So at the mirror tip, instead of pulling around one standard g, they're pulling over three g's. Nobody spends more than an hour there. We balance the sphere with storage masses on the other mirror tips."

Restive, only half-interested: "Why? It doesn't look very heavy."

"It isn't," Almquist conceded, "but Ellfive Prime has to be balanced just so if she's going to spin on center. That's why they filled that blister with heavy stored equipment opposite the hill—though a few tons here and there don't matter."

Weston wasn't listening. "I keep seeing something like barn doors flipping around, past the other end, ah, end cap." He pointed. Another brief sparkle. "There," he said.

Almquist's arm tipped the control stick, and the tug slid farther from the colony's axis of rotation. "Stacking mirror cells for shipment," he explained. "We still have slag left over from a nitrogen-rich asteroid they towed here in the old days. Fused into plates, the slag makes good protection against solar flares. With a mirror face, it can do double duty. We're bundling up a pallet load, and a few cargo men are out there in P-suits—pressure suits. They—"

Weston would never know, and have cared less, what Almquist had started to say. The colony manager clapped the fingers of his free hand against the wireless speaker in his left ear. His face stiffened with zealot intensity. Fingers flickering to the console as the tug rolled and accelerated, Almquist began to speak into his throat mike—something about a Code Three. Weston knew something was being kept from him. He didn't like it and said so. Then he said so again.

". . . happened before," Almquist was saying to someone, "but this time you keep him centered, Radar Prime. I'll haul him in myself. Just talk him out of a panic; you know the drill. Please be quiet, Mr. Weston," he added in a too-polite aside.

"Don't patronize me," Weston spat. "Are we in trouble?"

"I'm swinging around the hull; give me a vector," Almquist continued, and Weston felt his body sag under acceleration. "Are you in voice contact?" Pause. "Doesn't he acknowledge? He's on a work-crew-scrambler circuit, but you can patch me in. Do it."

"You're treating me like a child."

"If you don't shut up, Weston, I *will*. Oh, hell, it's easier to humor you." He flicked a toggle, and the cabin speaker responded.

"... be okay. I have my explosive riveter," said an unfamiliar voice; adult male, thinned and tightened by tension. "Starting to retro-fire now."

Almquist counted aloud at the muffled sharp bursts. "Not too fast, Versky," he cautioned. "You overheat a rivet gun, and the whole load could detonate."

"Jeez, I'm cartwheeling," Versky cut in. "Hang tight, guys." More bursts, now a staccato hammer. Versky's monologue gave no sign that he had heard Almquist, had all the signs of impending panic.

"Versky, listen to me. Take your goddamn finger off the trigger. We have you on radar. Relax. This is Torin Almquist, Versky. I say again—"

But he didn't. Far beyond, streaking out of the ecliptic, a brief nova flashed against the stars. The voice was cut off instantly. Weston saw Almquist's eyes blink hard, and in that moment the manager's face seemed aged by compassion and hopelessness. Then, very quietly: "Radar Prime, what do you have on scope?"

"Nothing but confetti, Mr. Almquist. Going everywhere at once."

"Should I pursue?"

"Your option, sir."

"And your responsibility."

"Yes, sir. No, don't pursue. Sorry."

"Not your fault. I want reports from you and Versky's cargo-team leader with all possible speed." Almquist flicked toggles with delicate savagery, turned his little vessel around, arrowed back to the dock port. Glancing at Weston, he said, "A skilled cargo man named Yves Versky. Experienced man; should've known better. He floated into a mirror support while horsing those slag cells around and got grazed by it. Batted him hell to breakfast." Then, whispering viciously to himself, "Goddamn those big rivet guns. They can't be used like control jets. Versky knew that."

Then, for the first time, Weston realized what he had seen. A man in a pressure suit had just been blown to small pieces before his eyes. It would make a lovely anecdote over sherry, Weston decided.

Even if Almquist had swung past the external hull blister he would have failed to see, through a darkened view port, the two shabby types looking out. Nobody had official business in the blister. The younger man grimaced nervously, heavy cords bunching at his neck. He was half a head taller than his companion. "What d'you think, Zen?"

The other man yielded a lopsided smile. "Sounds good." He unplugged a pocket communicator from the wall and stuffed it into his threadbare coverall, then leaned forward at the view port. His chunky, muscular torso and short legs ill-matched the extraordinary arms that reached halfway to his knees, giving him the look of a tall dwarf. "I think they bought it, Yves."

"What if they didn't?"

Zen swung around, now grinning outright, and regarded Yves Versky through a swatch of brown hair that was seldom cut. "Hey, do like boss Almquist told you: Relax! They gotta buy it."

"I don't follow you."

"Then you'd better learn to. Look, if they recover any pieces, they'll find human

flesh. How can they know it was a poor rummy's body thawed after six months in deep freeze? And if they *did* decide it's a scam, they'd have to explain how we planted him in your P-suit. And cut him loose from the blister, when only a few people are supposed to have access here; *and* preset the audio tape and the explosive, *and* coaxed a decent performance out of a lunk like you, *and*," he spread his apelike arms wide, his face comically ugly in glee, "nobody can afford to admit there's a scam counterculture on Ellfive Prime. All the way up to Torin Almquist there'd be just too much egg on too many faces. It ain't gonna happen, Versky."

The hulking cargo man found himself infected by the grin, but: "I wonder how long it'll be before I see another egg."

Zen snorted, "First time you lug a carton of edible garbage out of Hilton Prime, me lad. Jean Neruda's half-blind; when you put on the right coverall, he won't know he has an extra in his recycling crew, and after two days you won't mind pickin' chicken out of the slop. Just sit tight in your basement hidey-hole when you're off duty for a while. Stay away from crews that might recognize you until your beard grows. And keep your head shaved like I told you."

Versky heaved a long sigh, sweeping a hand over his newly bald scalp. "You'll drop in on me? I need a lot of tips on the scam life. And—and I don't know how to repay you."

"A million ways. I'll think of a few, young fella. And sure, you'll see me—whenever I like."

Versky chuckled at the term *young fella*. He knew Zen might be in his forties, but he seemed younger. Versky followed his mentor to the air lock into the colony hull. "Well, just don't forget your friend in the garbage business," he urged, fearful of his unknown future.

Zen paused in the conduit that snaked beneath the soil of Ellfive Prime. "Friendship," he half-joked, "varies directly with mutual benefit and inversely with guilt. Put another way," he said, lapsing into scam language as he trotted toward the South end cap, "a friend who's willing to be understood is a joy. One that demands understanding is a pain in the ass."

"You think too much," Versky laughed. They moved softly now, approaching an entry to the hotel basement.

Zen glanced through the spy hole, paused before punching the wall in the requisite place. "Just like you work too much." He flashed his patented gargoyle grin. "Trust me. Give your heart a rest."

Versky, much too tall for his borrowed clothing, inflated his barrel chest in challenge. "Do I look like a heart murmur?"

A shrug. "You did to OrbGen's doctors, rot their souls—which is why you were due to be Earthsided next week. Don't lay that on me, ol' scam; I'm the one who's reprieved you to a low-g colony, if you'll just stay in low-g areas near the end caps." He opened the door.

Versky saw the hand signal and whispered, "I got it: Wait thirty seconds." He chuckled again. "Sometimes I think you should be running this colony."

Zen slipped through, left the door nearly closed, waited until Versky had moved near the slit. "In some ways," he stage-whispered back, "I do." Wink. Then he scuttled away.

At mid-morning the next day, Almquist arranged the accident report and its supporting documents into a neat sequence across his video console. Slouching behind his desk with folded arms, he regarded the display for a moment before lifting his eyes. "What've I forgot, Emory?"

Emory Reina cocked his head sparrowlike at the display. Almquist gnawed a cuticle, watching the soulful Reina's eyes dart back and forth in sober scrutiny. "It's all there," was Reina's verdict. "The only safety infraction was Versky's, I think."

"You mean the tether he should've worn?"

A nod; Reina started to speak but thought better of it, the furrows dark on his olive face.

"Spit it out, dammit," Almquist goaded. Reina usually thought a lot more than he talked, a trait Almquist valued in his assistant manager.

"I am wondering," the little Brazilian said, "if it was really accidental." Their eyes locked again, held for a long moment. "Ellfive Prime has been orbiting for fifty years. Discounting early casualties throughout the war, the colony has had twenty-seven fatal mishaps among OrbGen employees. Fourteen of them occurred during the last few days of the victim's tour on the colony."

"That's hard data?"

Another nod.

"You're trying to say they're suicides."

"I am trying not to think so." A devout Catholic, Reina spoke hesitantly.

Maybe he's afraid God is listening. I wish I thought He would. "Can't say I'd blame some of them," Almquist said aloud, remembering. "But not Yves Versky. Too young, too much to live for."

"You must account for my pessimism," Reina replied.

"It's what we pay you for," Almquist said, trying in vain to make it airy. "Maybe the insurance people could convince OrbGen to sweeten the Earthside trip for returning people. It might be cheaper in the long run."

Emory Reina's face said that was bloody likely. "After I send a repair crew to fix the drizzle from that rain pipe, I could draft a suggestion from you to the insurance group," was all he said.

"Do that." Almquist turned his attention to the desk console. As Reina padded out of the low Center building into its courtyard, the manager committed the accident report to memory storage, then paused. His fingers twitched nervously over his computer-terminal keyboard. Oh, yes, he'd forgotten something, all right. Conveniently.

In moments, Almquist had queried Prime memory for an accident report ten years past. It was an old story in more ways than one. Philip Elroy Hazen: technical editor, born 14 September 2014, arrived on L-5' for first tour to write modification work orders 8 May 2039. Earthsided on 10 May 2041; a standard two-year tour for those who were skilled enough to qualify. A colony tour did not imply any other bonus: The tour *was* the bonus. It worked out very well for the owning conglomerates that controlled literally everything on their colonies. Almquist's mouth twitched: *well, maybe not literally . . .*

Hazen had wangled a second tour to the colony on 23 February 2045, implying that he'd been plenty good at his work. Fatal injury accident report filed 20 February 2047.

Uh-huh; uh-huh! Yes, by God, there was a familiar ring to it: a malf in Hazen's radio while he was suited up, doing one last check on a modification to the casting facility. Flung off the tip of the mirror and—*Jesus, what a freakish way to go*—straight into a mountain of white-hot slag that had radiated like a dying sun near a temporary processing module outside the colony hull. No recovery attempted; why sift ashes?

Phil Hazen; Zen, they'd called him. The guy they used to say needed rollerskates on his hands; but that was envy talking. Almquist had known Zen slightly, and the guy was an absolute terror at sky-bike racing along the zero-g axis of the colony. Built his own tri-wing craft, even gave it a Maltese cross, scarlet polymer wingskin, and a funny name. The *Red Baron* had looked like a joke, just what Zen had counted on. He'd won a year's pay before other sky bikers realized it wasn't a streak of luck.

Hazen had always made his luck. With his sky bike—it was with young seasoned spruce and the foam polymer, fine engineering and better craftsmanship, all disguised to lure the suckers. And all without an engineering degree. Zen had just picked up expertise, never seeming to work at it.

And when his luck ran out, it was—Almquist checked the display—only days before he was slated for Earthside. Uh-huh!

Torin Almquist knew about the shadowy wraiths who somehow dropped from sight on the colony, to be caught later or to die for lack of medical attention or, in a few cases, to find some scam—some special advantage—to keep them hidden on Ellfive Prime. He'd been sure Zen was a survivor, no matter what the accident report said. What was the phrase? *A scam, not a bum*; being on the scam wasn't quite the same. A scam wasn't down and out of resources; he was down and out of sight. Maybe the crafty Zen had engineered another fatality that wasn't fatal.

Almquist hadn't caught anyone matching the description of Zen. (Almost, but not quite.) He thought about young Yves Versky, whose medical report hadn't been all that bad, then considered Versky's life expectancy on the colony versus his chances Earthside. Versky had been a sharp hard worker too. Almquist leaned back in his chair again and stared at his display. He had no way of knowing that Reina's rain-pipe crew was too late to ward off disaster.

A rain pipe had been leaking long before Grounds Maintenance realized they had a problem. Rain was a simple matter on Ellfive Prime: You built a web of pipes with spray nozzles that ran the length of the colony. From ground level the pipes were nearly invisible, thin lines connected by crosspieces in a great cylindrical net surrounding the colony's zero-g axis. Gravity loading near the axis was so slight that the rain pipes could be anchored lightly.

Yet now and then, a sky biker would pedal foolishly from the zero-g region or would fail to compensate for the gentle rolling movement generated by the air itself. That was when the rain pipes saved somebody's bacon and on rare occasions suffered a kink. At such times, Almquist was tempted to press for the outlawing of sky bikes until the rabid sports association could raise money for a safety net to protect people and pipes alike. But the cost would have been far too great: It would have amounted to a flat prohibition of sky bikes.

The problem had started a month earlier with a mild collision between a sky bike and a crosspiece. The biker got back intact, but the impact popped a kink on the underside of the attached rain pipe. The kink could not be seen from the colony's axis. It might possibly have been spotted from floor level with a good, powerful telescope.

Inspection crews used safety tethers, which loaded the rain pipe just enough to close the crack while the inspector passed. Then the drizzle resumed for as long as the rain continued. Thereafter, the thrice-weekly afternoon rain from that pipe had been lessened in a line running from Ellfive Prime's Hilton Hotel, past the prized hill, over the colony's one shallow lake, to work-staff apartments that stretched from the lake to the North end cap, where crops were grown. Rain was lessened, that is, everywhere but over the pine-covered hill directly below the kink. Total rainfall

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was unchanged; but the hill got three times its normal moisture, which gradually soaked down through a forty-year accumulation of ponderosa needles and humus, into the soil below.

In this fashion the hill absorbed one hundred thousand kilograms too much water in a month. A little water percolated back to the creek and the lake it fed. Some of it was still soaking down through the humus overburden. And much of it—far too much—was held by the underlying slope soil, which was gradually turning to ooze. The extra mass had already caused a barely detectable shift in the colony's spin axis. Almquist had his best troubleshooter, Lee Shumway, quietly checking the hull for a structural problem near the hull blister.

Suzanne Nagel was a lissome widow whose second passion was for her sky bike. She had been idling along in zero-g, her chain-driven propeller a soft whirr behind her, when something obscured her view of the hill far below. She kept staring at it until she was well beyond the leak, then realized the obstruction was a spray of water. Suzy sprint-pedaled the rest of the way to the end cap, and five minutes later the rains were canceled by Emory Reina.

Thanks to Suzy Nagel's stamina, the slope did not collapse that day. But working from inspection records, Reina tragically assumed that the leak had been present for perhaps three days instead of a month. The hill needed something—a local vibration, for example—to begin the mud slide that could abruptly displace up to two hundred thousand tons of mass downslope. Which would inevitably bring on the nightmare more feared than meteorites by every colony manager: spinquake. Small meteorites could only damage a colony, but computer simulations had proved that if the spin axis shifted suddenly a spinquake could crack a colony like an egg.

The repair crew was already in place high above when Reina brought his electrabout three-wheeler to a halt near a path that led up to the pines. His belt-comm set allowed direct contact with the crew and instant access to all channels, including his private scrambler to Torin Almquist.

"I can see the kink on your video," Reina told the crew leader, studying his belt-slung video. "Sleeve it and run a pressure check. We can be thankful that a leak that large was not over Hilton Prime," he added, laughing. The retired OrbGen executives who luxuriated in the hotel would have screamed raw murder, of course. And the leak would have been noticed.

Scanning the dwarf apple trees at the foot of the slope, Reina's gaze moved to the winding footpath. In the forenoon quietude, he could hear distant swimmers cavorting in the slightly reduced gravity of the Hilton pool near the South end cap. But somewhere above him on the hill, a large animal thrashed clumsily through the pines. It wasn't one of the half-tame deer; only maladroit humans made that much commotion on Ellfive Prime. Straining to locate the hiker, Reina saw the leaning trees. He blinked. No trick of eyesight; they were really leaning. Then he saw the long shallow mud slide, no more than a portent of its potential, that covered part of the footpath. For perhaps five seconds, his mind grasping the implication of what he saw, Reina stood perfectly still. His mouth hung open.

In deadly calm, coding the alarm on his scrambler circuit: "Torin, Emory Reina. I have a Code Three on the hill. And," he swallowed hard, "potential Code One. I say again, Code One; mud slides on the main-path side of the hill. Over." Then Reina began to shout toward the pines.

Code Three was bad enough: a life in danger. Code Two was more serious still, implying an equipment malfunction that could affect many lives. Code One was reserved for colony-wide disaster. Reina's voice shook. He had never called a Code One before.

During the half-minute it took for Almquist to race from a conference to his office, Reina's shouts flushed not one but two men from the hillside. The first, a heavy individual in golf knickers, identified himself testily as Voerster Weston. He stressed that he was not accustomed to peremptory demands from an overall-clad worker. The second man emerged far to Reina's right but kept hidden in a stand of mountain laurel, listening, surmising, sweating.

Reina's was the voice of sweet reason. "If you want to live, Mr. Weston, please lie down where you are. Slowly. The trees below you are leaning outward, and they were not that way yesterday."

"Damnation, I know that much," Weston howled; "that's what I was looking at. Do you know how wet it is up here? I will not lie down on this muck!"

The man in the laurels made a snap decision, cursed, and stood up. "If you don't, two-belly, I'll shoot you here and now," came the voice of Philip Elroy Hazen. Zen had one hand thrust menacingly into a coverall pocket. He was liberally smeared with mud, and his aspect was not pleasant.

"O *demonio*, another one," Reina muttered. The fat man saw himself flanked, believed Zen's implied lie about a weapon, and carefully levered himself down to the blanket of pine needles. At this moment Torin Almquist answered the Mayday.

There was no way to tell how much soil might slide, but through staccato interchanges Emory Reina described the scene better than his video could show it. Almquist was grim. "We're already monitoring an increase in the off-center spin, Emory; not a severe shift, but it could get to be. Affirmative on that potential Code One. I'm sending a full emergency crew to the blister, now that we know where to start."

Reina thought for a moment, glumly pleased that neither man on the slope had moved. "I believe we can save these two by lowering a safety sling from my crew. They are directly overhead. Concur?"

An instant's pause. "Smart, Emory. And you get your butt out of there. Leave the electrabout, man, just go!"

"With respect, I cannot. Someone must direct the sling deployment from here."

"It's your bacon. I'll send another crew to you."

"Volunteers only," Reina begged, watching the slope. For the moment it seemed firm. Yet a bulge near cosmetically placed slag boulders suggested a second mass displacement. Reina then explained their predicament to the men on the slope, to ensure their compliance.

"It's worse than that," Zen called down. "There was a dugout over there," he pointed to the base of a boulder, "where a woman was living. She's buried, I'm afraid."

Reina shook his head sadly, using his comm set to his work crew. Over four hundred meters above, men were lashing tether lines from crosspieces to distribute the weight of a sling. Spare tethers could be linked by carabiners to make a lifeline reaching to the colony floor. The exercise was familiar to the crew, but only as a drill until now. And they would be hoisting, not lowering.

Diametrically opposite from the hill, troubleshooters converged on the blister where the colony's long-unused reactor and coolant tanks were stored. Their job was simple—in principle.

The reactor subsystems had been designed as portable elements, furnished with lifting and towing lugs. The whole reactor system weighed nearly ten thousand tons, including coolant tanks. Since the blister originally had been built around the stored reactor elements to balance the hill mass, Almquist needed only to split the blister open to space, then lower the reactor elements on quartz cables. As the

mass moved out of the blister and away from the hull, it would increase in apparent weight, balancing the downward flow of mud across the hull. Almquist was lucky in one detail: The reactor was not in line with the great solar-mirror strips. Elements could be lowered a long way while repairs were carried out to redistribute the soil.

Almquist marshaled forces from his office. He heard the colony-wide alarm whoop its signal, watched monitors as the colony staff and two thousand other residents hurried toward safety in end-cap domes. His own P-suit, ungainly and dust-covered, hung in his apartment ten paces away. There was no time to fetch it while he was at his post. *Never again*, he promised himself. He divided his attention among monitors showing the evacuation, the blister team, and the immediate problem above Emory Reina.

Reina was optimistic as the sling snaked down. "South a bit," he urged into his comm set, then raised his voice. "Mr. Weston, a sling is above you, a little north. Climb in and buckle the harness. They will reel you in."

"Now, steady as she goes," Reina said, then, "Stop." The sling collapsed on the turf near the fat man. Reina, fearful that the mud-covered stranger might lose heart, called to assure him that the sling would return.

"I'll take my chances here," Zen called back. The sling could mean capture. The fat man did not understand that any better than Reina did.

Voerster Weston paused halfway into his harness, staring up. Suddenly he was scrambling away from it, tripping in the sling, mindless with the fear of rising into a synthetic sky. Screaming, he fled down the slope. And brought part of it with him.

Reina saw apple trees churning toward him in time to leap atop his electrabout and kept his wits enough to grab branches as the first great wave slid from the slope. He saw Weston disappear in two separate upheavals, swallowed under the mud slide he had provoked. Mauled by hardwood, mired to his knees, Reina spat blood and turf. He hauled one leg free, then the other, pulling at tree limbs. The second man, he saw, had slithered against a thick pine and was now trying to climb it.

Still calm, voice indistinct through his broken jaw, Reina redirected the sling crew. The sling harness bounced upslope near the second man. "Take the sling," Reina bawled.

Now Reina's whole world shuddered. It was a slow, perceptible motion, each displacement of mud worsening the off-center rotation and slight acceleration changes that could bring more mud that could bring worse. . . . Reina forced his mind back to the immediate problem. He could not see himself at its focus.

Almquist felt the tremors, saw what had to be done. "Emory, I'm sending your relief crew back. Shumway's in the blister. They don't have time to cut the blister now; they'll have to blow it open. You have about three minutes to get to firm ground. Then you run like hell to South end cap."

"As soon as this man is in the sling," Reina mumbled. Zen had already made his decision, seeing the glistening ooze that had buried the fat man.

"Now! Right fucking now," Almquist pleaded. "I can't delay it a millisecond. When Shumway blows the blister open it'll be a sudden shake, Emory. You know what that means?"

Reina did. The sharp tremor would probably bring the entire middle of the slope thundering down. Even if the reactor could be lowered in minutes, it would take only seconds for the muck to engulf him. Reina began to pick his way backward across fallen apple trees, wondering why his left arm had an extra bend above the wrist. He kept a running fire of instructions to the rain-pipe crew as Zen untangled the sling harness. Reina struggled toward safety in pain, patience, reluctance. And far too slowly.

"He is buckled in," Reina announced. His last words were, "Haul away." He saw the mud-spattered Zen begin to rise, swinging in a broad arc, and they exchanged "OK" hand signals before Reina gave full attention to his own escape. He had just reached the edge of firm ground when Lee Shumway, moving with incredible speed in a full P-suit, ducked through a blister airlock and triggered the charges.

The colony floor bucked once, throwing Reina off stride. He fell on his fractured ulna, rolled, opened his mouth—perhaps to moan, perhaps to pray. His breath was bottled by mud as he was flung beneath a viscous gray tide that rolled numberless tons of debris over him.

The immense structure groaned, but held. Zen swayed sickeningly as Ellfive Prime shook around him. He saw Reina die, watched helplessly as a retiree home across the valley sagged and collapsed. Below him, a covey of Quetzal birds burst from the treetops like jeweled scissors in flight. As he was drawn higher he could see more trees slide.

The damage worsened; too many people had been too slow. The colony was rattling everything that would rattle. Now it was all rattling louder. Somewhere, a shrill whistle keened as precious air and more precious water vapor rushed toward a hole in the sunlight windows.

When the shouts above him became louder than the carnage below, Zen began to hope. Strong arms reached for his and moments later he was attached to another tether. "I can make it from here," he said, calling his thanks back as he hauled himself toward the end-cap braces.

A crew man with a video comm set thrust it toward Zen as he neared a ladder. "It's for you," he said, noncommittal.

For an instant, an eon, Zen's body froze, though he continued to waft nearer. Then he shrugged and took the comm set as though it were ticking. He saw a remembered face in the video. Wrapping an arm around the ladder, he nodded to the face. "Don Bellows here," he said innocently.

Pause, then a snarl: "You wouldn't believe my mixed emotions when I recognized you on the monitor. Well, Mister Bellows, Adolf Hitler here." Almquist went on, "Or you'll think so damned quick unless you're in my office as fast as your knuckles will carry you."

The crew man was looking away, but he was tense. He knew. Zen cleared his throat for a whine. "I'm scared—"

"You've been dead for ten years, Hazen. How can you be scared? Frazer there will escort you; his instructions are to brain you if he has to. I have sweeping powers right now. Don't con me and don't argue; I need you right here, right now."

By the time Zen reached the terraces with their felled, jumbled crops, the slow shakes had subsided. They seemed to diminish to nothing as he trotted, the rangy Frazer in step behind, to an abandoned electrabout. Damage was everywhere, yet the silence was oppressive. A few electrical fires were kindling in apartments as they moved toward the Colony Center building. Some fires would be out, others out of control, in minutes. The crew man gestured Zen through the courtyard and past two doors. Torin Almquist stood looming over his console display, ignoring huge shards of glass that littered his carpet.

Almquist adjusted a video monitor. "Thanks, Frazer; would you wait in the next room?" The crew man let his face complain of his idleness but complied silently. Without glancing from the monitors, Almquist transfixed the grimy Zen. "If I say the word, you're a dead man. If I say a different word, you go Earthside in manacles. You're still here only because I wanted you here all the time, just in case I ever needed you. Well, I need you now. If you hadn't been dropped into my lap we'd have found you on a Priority One. Never doubt that.

"If I say a third word, you get a special assistant's slot—I can swing that—for as long as I'm here. All I'm waiting for is one word from you. If it's a lie, you're dead meat. Will you help Ellfive Prime? Yes or no?"

Zen considered his chances. Not past that long-legged Frazer. They could follow him on monitors for some distance anyhow unless he had a head start. "Given the right conditions," Zen hazarded.

Almquist's head snapped up. "My best friend just died for you, against my better judgment. Yes or no."

"Yes. I owe you nothin', but I owe him somethin'."

Back to the monitors, speaking to Zen: "Lee Shumway's crew has recovered our mass balance, and they can do it again if necessary. I doubt there'll be more mud slides, though; five minutes of spinquakes should've done it all."

Zen moved to watch over the tall man's bare arms. Two crews could be seen from a utility tug monitor, rushing to repair window leaks where water vapor had crystallized in space as glittering fog. The colony's external heat radiator was in massive fragments, and the mirrors were jammed in place. It was going to get hot in Ellfive Prime. "How soon will we get help from other colonies?"

Almquist hesitated. Then, "We won't, unless we fail to cope. OrbGen is afraid some other corporate pirate will claim salvage rights. And when you're on my staff, everything I tell you is privileged data."

"You think the danger is over?"

"Over?" Almquist barked a laugh that threatened to climb out of control. He ticked items off on his fingers. "We're losing water vapor; we have to mask mirrors and repair the radiator, or we fry; half our crops are ruined and food stores may not last; and most residents are hopeless clods who have no idea how to fend for themselves. Now d'you see why I diverted searches when I could've taken you twice before?"

Zen's mouth was a cynical curve.

Almquist: "Once when you dragged a kid from the lake filters I could've had you at the emergency room." Zen's eyebrows lifted in surprised agreement. "And once when a waiter realized you were scamming food from the Hilton service elevator."

"That was somebody else, you weren't even close. But okay, you've been a real sweetheart. Why?"

"Because you've learned to live outside the system! Food, shelter, medical help, God knows what else; you have another system that hardly affects mine, and now we're going to teach your tricks to the survivors. This colony is going to make it. You were my experimental group, Zen. You just didn't know it." He rubbed his chin reflectively. "By the way, how many guys are on the scam? Couple of dozen?" An optimist, Torin Almquist picked what he considered a high figure.

A chuckle. "Couple of hundred, you mean." Zen saw slack-jawed disbelief and went on: "They're not all guys. A few growing families. There's Wandering Mary, Maria Polyakova; our only registered nurse, but I found her dugout full of mud this morning. I hope she was sleepin' out."

"Can you enlist their help? If they don't help, this colony can still die. The computer says it will, as things stand now. It'll be close, but we won't make it. How'd you like to take your chances with a salvage crew?"

"Not a chance. But I can't help just standing here swappin' wind with you."

"Right." Eyes bored into Zen's, assessing him. The thieves' argot, the beddamned-to-you gaze, suggested a man who was more than Hazen had been. "I'll give you a temporary pass. See you here tomorrow morning; for now, look the whole colony over, and bring a list of problems and solutions as you see 'em."

Zen turned to leave, then looked back. "You're really gonna let me just walk right out." A statement of wonder, and of fact.

"Not without this," Almquist said, scribbling on a plastic chit. He thrust it toward Zen. "Show it to Frazer."

Inspecting the cursive scrawl: "Doesn't look like much."

"*Más que nada*," Almquist smiled, then looked quickly away as his face fell. *Better than nothing*; his private joke with Emory Reina. He glanced at the retreating Zen and rubbed his forehead. Grief did funny things to people's heads. To deny a death you won't accept, you invest his character in another man. Not very smart when the other man might betray you for the sheer fun of it. Torin Almquist massaged his temples and called Lee Shumway. They still had casualties to rescue.

Zen fought a sense of unreality as he moved openly in broad daylight. Everyone was lost in his own concerns. Zen hauled one scam from his plastic bubble under the lake surface, half dead in stagnant air after mud from the creek swamped his air exchanger. An entire family of scams, living as servants in the illegal basement they had excavated for a resident, had been crushed when the foundation collapsed.

But he nearly wept to find Wandering Mary safe in a secret conduit, tending to a dozen wounded scams. He took notes as she told him where her curative herbs were planted and how to use them. The old girl flatly refused to leave her charges, her black eyes flashing through wisps of gray hair, and Zen promised to send food.

The luck of Sammy the Touch was holding strong. The crop compost heap that covered his half-acre foam shell seemed to insulate it from ground shock as well. Sammy patted his little round tummy, always a cheerful sign, as he ushered Zen into the bar where, on a good night, thirty scams might be gathered. If Zen was the widest-ranging scam on Ellfive Prime, Sammy the Touch was the most secure.

Zen accepted a glass of potato vodka—Sammy was seldom *that* easy a touch—and allowed a parody of the truth to be drawn from him. He'd offered his services to an assistant engineer, he said, in exchange for unspecified future privileges. Sammy either bought the story or took a lease on it. He responded after some haggling with the promise of a hundred kilos of "medicinal" alcohol and half his supply of bottled methane. Both were produced from compost precisely under the noses of the crop crew, and both were supplied on credit. Sammy also agreed to provision the hidden infirmary of Wandering Mary. Zen hugged the embarrassed Sammy and exited through one of the conduits, promising to pick up the supplies later.

Everywhere he went, Zen realized, the scams were coping better than legal residents. He helped a startingly handsome middle-aged blonde douse the remains of her smoldering wardrobe. Her apartment complex had knelt into its courtyard and caught fire.

"I'm going to freeze tonight," Suzy Nagel murmured philosophically.

He eyed her skimpy costume and doubted it. Besides, the temperature was slowly climbing, and there wouldn't be any night until the solar mirrors could be pivoted again. There were other ways to move the colony to a less reflective position, but he knew Almquist would try the direct solutions first.

Farmer Brown—no one knew his original name—wore his usual stolen agronomy-crew coverall as he hawked his pack load of vegetables among residents in the low-rent area. He had not assessed all the damage to his own crops, tucked and espaliered into corners over five square kilometers of the colony. Worried as he was, he had time to hear a convincing story. "Maybe I'm crazy to compete against myself," he told Zen, "but you got a point. If a salvage outfit takes over, it's kaymag." KMAG: Kiss my ass good-bye. "I'll sell you seeds, even breeding pairs of

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hamsters, but don't ask me to face the honchos in person. You remember about the vigilantes, ol' scam."

Zen nodded. He gave no thought to the time until a long shadow striped a third of the colony floor. One of the mirrors had been coaxed into pivoting. Christ, he was tired—but why not? It would have been dark long before, on an ordinary day. He sought his sleeping quarters in Jean Neruda's apartment, hoping Neruda wouldn't insist on using Zen's eyesight to fill out receipts. Their arrangement was a comfortable quid pro quo, but please, thought Zen, not tonight!

He found a more immediate problem than receipts. Yves Versky slumped, trembling, in the shambles of Neruda's place, holding a standard emergency oxygen mask over the old man's face. The adjoining office had lost one wall in the spinquake, moments after the recycling crew ran for end-cap domes.

"I had to hole up here," Versky gasped, exhausted. "Didn't know where else to go. Neruda wouldn't leave either. Then the old fool smelled smoke and dumped his goldfish bowl on a live power line. Must've blown half the circuits in his body." Like a spring-wound toy, Versky's movements and voice diminished. "Took me two hours of mouth-to-mouth before he was breathing steady, Zen. Boy, have I got a headache."

Versky fell asleep holding the mask in place. Zen could infer the rest. Neruda, unwilling to leave familiar rooms in his advancing blindness. Versky, unwilling to abandon a life, even that of a half-electrocuted, crotchety old man. Yet Neruda was right to stay put: Earthside awaited the OrbGen employee whose eyes failed.

Zen lowered the inert Versky to the floor, patted the big man's shoulder. More than unremitting care, he had shown stamina and first-aid expertise. Old Neruda awoke once, half-manic, half-just disoriented. Zen nursed him through it with surface awareness. On another level he was cataloguing items for Almquist, for survivors, for Ellfive Prime.

And on the critical level a voice in him jeered, *bullshit: For yourself*. Not because Almquist or Reina had done him any favors, but because Torin Almquist was right. The colony manager could find him eventually; maybe it was better to rejoin the system now, on good terms. Besides, as the only man who could move between the official system and the scam counterculture, he could really wheel and deal. It might cause some hard feelings in the conduits, but . . . Zen sighed, and slept. Poorly.

It was two days before Zen made every contact he needed, two more when Almquist announced that Ellfive Prime would probably make it. The ambient temperature had stabilized. Air and water losses had ceased. They did not have enough stored food to provide three thousand daily calories per person beyond twenty days, but crash courses in multicropping were suddenly popular, and some immature crops could be eaten.

"It'd help if you could coax a few scams into instructing," Almquist urged as he slowed to match Zen's choppy pace. They turned from the damaged crop terraces toward the Center.

"Unnn-likely," Zen intoned. "We still talk about wartime, when vigilantes tried to clean us out. They ushered a couple of nice people out of airlocks, naked, which we think was a little brusque. Leave it alone; it's working."

A nod. "Seems to be. But I have doubts about the maturing rates of your seeds. Why didn't my people know about those hybrid daikon radishes and tomatoes?"

"You were after long-term yield," Zen shrugged. "This hot weather will ripen the stuff faster, too. We've been hiding a dozen short-term crops under your nose, including dandelions better than spinach. Like hamster haunch is better'n rabbit, and a lot quicker to grow."

Almquist could believe the eighteen-day gestation period, but was astonished at the size of the breeding stock. "You realize your one-kilo hamsters could be more pet than protein?"

"Not in our economy," Zen snorted. "It's hard to be sentimental when you're down and out. Or stylish either." He indicated his frayed coverall. "By the time the rag man gets this, it won't yield three meters of dental floss."

Almquist grinned for the first time in many days. What his new assistant had forgotten in polite speech, he made up in the optimism of a young punk. He corrected himself: an *old* punk. "You know what hurts? You're nearly my age and look ten years younger. How?"

It wasn't a specific exercise, Zen explained. It was attitude. "You're careworn," he sniffed. "Beat your brains out for idling plutocrats fifty weeks a year and then wonder why you age faster than I do." Wondering headshake.

They turned toward the Center courtyard. Amused, Almquist said, "You're a plutocrat?"

"Ain't racin' my motors. Look at all the Indians who used to live past a hundred. A Blackfoot busted his ass like I do, maybe ten or twenty weeks a year. They weren't dumb; just scruffy."

Almquist forgot his retort; his desk console was flashing for attention. Zen wandered out of the office, returning with two cups of scam "coffee." Almquist sipped it between calls, wondering if it was really brewed from ground dandelion root, considering how this impudent troll was changing his life, could change it further.

Finally he sat back. "You heard OrbGen's assessment," he sighed. "I'm a Goddamned hero, for now. Don't ask me about next year. If they insist on making poor Emory a sacrificial goat to feed ravening stockholders, I can't help it."

Impassive: "Sure you could. You just let 'em co-opt you." Zen sighed, then released a sad troglodyte's smile. "Like you co-opted me."

"I can unco-opt. Nothing's permanent."

"You said it, bubba."

Almquist took a long breath, then cantilevered a forefinger in warning. "Watch your tongue, Hazen. When I pay your salary, you pay some respect." He saw the sullen look in Zen's eyes and bored in. "Or would you rather go on the scam again and get Earthsided the first chance I get? I haven't *begun* to co-opt you yet," he glowered. "I have to meet with the Colony Council in five minutes—to explain a lot of things, including you. When I get back, I want a map of those conduits the scams built, to the best of your knowledge."

A flood of ice washed through Zen's veins. Staring over the cup of coffee that shook in his hands: "You *know* I can't do that."

Almquist paused in the doorway, his expression smug. "You know the alternative. Think about it," he said, and turned and walked out.

When Torin Almquist returned, his wastebasket was overturned on his desk. A ripe odor wrinkled his nose for him even before he saw what lay atop the wastebasket like an offering on a pedestal: a lavish gift of human excrement. His letter opener, an antique, protruded from the turd. It skewered a plastic chit, Zen's pass. On the chit, in draftsman's neat printing, full caps: I THOUGHT ABOUT IT.

Well, you sure couldn't mistake his answer, Almquist reflected as he dumped the offal into his toilet. Trust Zen to make the right decision.

Which way had he gone? Almquist could only guess at the underground warrens built during the past fifty years, but chose not to guess. He also knew better than to mention Zen to the Colony Council. The manager felt a twinge of guilt at the

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choice, truly no choice at all, that he had forced on Zen—but there was no other way.

If Zen knew the whole truth, he might get careless, and a low profile was vital for the scams. The setup benefited all of Ellfive Prime. Who could say when the colony might once more need the counterculture and its primitive ways?

And that meant Zen had to disappear again, genuinely down and out of reach. If Almquist himself didn't know exactly where the scams hid, he couldn't tell OrbGen even under drugs. And he didn't intend to tell. Sooner or later OrbGen would schedule Torin Almquist for permanent Earthside rotation, and when that day came he might need help in his own disappearance. That would be the time to ferret out a secret conduit, to contact Zen. The scams could use an engineering manager who knew the official system inside out.

Almquist grinned to himself and brewed a cup of dandelion coffee. Best to get used to the stuff now, he reasoned; it would be a staple after he retired, down and out on Ellfive Prime.