

# Absolute Magnitude

SCIENCE FICTION ADVENTURES

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Summer 1995

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# Editorial Notes

by

## Warren Lapine

$M = m + 5 + 5 \log p$

*Absolute Magnitude* doesn't publish funny science fiction. The reason for this is simple: I don't tend to like funny science fiction. Beyond that, most science fiction that is written with the intent of being funny seems very contrived, to me, and not the least bit funny.

A number of writers have pointed out that some of the stories that I have published in the past were funny science fiction. On this point I take exception. A number of the stories that I have published may have been humorous, perhaps even funny, but they were not funny science fiction. They were science fiction that happened to be humorous or funny. That is, they were science fiction first and funny second.

To some this may not be much of a distinction, but to me it makes all the difference in the world. Funny SF is about the jokes; the stories are only the means of delivery. Without the jokes the stories fall flat. When a story that is about people and their problems happens to be funny, I don't call it funny SF.

I'm willing to publish stories that are funny, really, I am. But humor for the sake of humor should remain the purview of humor magazines. Characters should come first, that's the bottom line. I want to introduce my readers to people and places that will stay in their memories for years to come. I don't think funny science fiction stays with the reader in the same way that serious science fiction does.

I'm not trying to be elitist. I understand that a large number of people enjoy writing and reading funny science fiction and that's fine. I just don't happen to be one of them. And I can't justify purchasing a story to satisfy marketing concerns.

I think too many magazines become bland copies of one another because their editors are spending too much time trying to second-guess their readers. I won't do that. I'm purchasing stories that I believe in. If I don't believe in the product that I'm producing, how can I expect my readers to? How can I justify spending all of my creative time on something that doesn't ring true for me? The answer is obvious—I can't justify such a thing, and I won't.

I believe that it is this attitude, more than anything else, that has brought *Absolute Magnitude* its phenomenal growth rate. Readers all across the country have responded to the honesty of this magazine. I'm proud of that. We've refused to aim at the lowest common denominator, and as a result have created a magazine that is unlike any of the other professional science fiction magazines.

As we continue to grow and move forward, I'll be watching the other magazines. It will be interesting to see if they catch on to the fact that readers want honesty and sincerity and not the latest hype.

## Congratulations

Casey and Jeannette Gallagher on the December 22, 1994 birth of Marjorie Emily Gallagher.

# Absolute Magnitude

Science Fiction Adventures

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Warren Lapine

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Kevin Murphy

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## Associate Editors

Casey Gallagher  
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# Absolute Magnitude

## *Science Fiction Adventures*

SUMMER 1995

ISSUE #3

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*All illustrations by Jose B. Ortiz*

*(except centerfold, which is by Bob Eggleton, and the rocket ships at the end of the stories, which are by Tim Ballou)*

*Photo by Kristine M. Struminsky*



Magnum

ISSUE #1



J. B. Ortiz '95



*This is Denise Lopes Heald's third appearance in the pages of Absolute Magnitude.  
Her first book Mistwalker is a Del Rey Discovery Book.  
Look for her in future issues of Absolute Magnitude*

## POOLS

by Denise Lopes Heald

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Quimbly waited, half in shadow, half in light, lying flat and still, his breath blowing craters in the coarse sand beneath his nose. About him, shadows shortened. A breeze gusted and died. Dust settled on his desert camouflage shirtsleeve, blending him into the dry wash.

The air smelled of creosote and baking sand. In front of his nose, ants roamed a sparse litter of withered grass stems, belly flowers, disintegrating cholla joints and disembodied cactus spines. The Formicidae weren't finding much to eat today, which was SC—standard case—in the great growing western desert.

Beyond the furrowed channel that hid Quimbly, jumbled boulders marked the path of last summer's flash floods. Islands of catclaw and desert thorns dotted the water course, and a flock of quail potted about beneath a drooping mesquite near the wash's far side, begging to become Quimbly's breakfast. But a shadow on the opposite side of the wash held his interest, most especially, the yellowed bit of PVC pipe sticking out of that shadow.

*Pipe* meant water, at least once, and the desert willow growing alongside that shadow indicated *now*. But the abandoned house he'd passed farther down the wash, said not much water, not enough to sustain anyone; unless the people here left early in the panic, before realizing they were safest where they sat or were too stupid or unlucky to survive here even with water.

Tattered rags had hung crumbling from the cabin's windows. Quimbly breathed slowly out, remembering the ruffled white of his mother's kitchen curtains. Did anyone live in their house anymore? This house here hadn't been lived in for a long time.

But it had been died in more than once. A skeleton lay on the stained and curling linoleum of the kitchen floor, its bones clean and stark white. The second, scattered about a weathered swing set in the yard, still wore hair and flaps of dried skin. Neither skeleton was child-sized, which said something, because most times, the little ones, like his sisters, died first.

Since the water crash, skeletons had lost fear impact on him; still, he heeded their warning. Decomposition rates differed here from those familiar to him on the high northern desert, but years separated the two deaths. And the house stood bare, systematically stripped, except for boxes of papers marked CSU, San Bernardino Research Station. The researchers might be about yet, living in a rock shelter or earth cave, anything less noticeable than the cabin. The water riots and the establishment of Military Governance in California drove bigger things than lizards beneath the Mojave's rocks.

Quimbly adjusted his filter goggles. Midmorning sun glared off the wash's pale glittering sand. Without filters he'd be blinded by light and rising heat waves. Scientists could argue whether or not ozone depletion dangerously increased the earth's surface brightness, but Quimbly protected his eyes either way. For the same reason, he wore UVA/B layered shirts and pants, and 60+ sunscreen on his exposed skin surfaces.

Focusing his goggles, he zoomed in on the shadow across the wash, upping the filters' light admittance ratio until he stared

down the dimly lit throat of a narrow rock cavern. Jagged walls and minimal staining betrayed human improvement, but he couldn't see any water. Was it there?

He checked his wrist readouts. Working his 4XTraX pickup across the creosote-covered plain to the canyon's mouth had taken an hour. He'd followed no definite road—just a remembrance and the green splash of spring growth thickening in the wash as he gained elevation. He'd hidden the primer gray truck amongst jumbled rocks, set its defenses, walked to the house and been in position here for another hour.

The ground temperature in the sun hovered at a hundred and twenty degrees. Lower down the mountains it would be higher and climbing. The breeze, under five mph, did little to cool him, and with humidity at fifteen, sweat evaporated before he became aware of it. If he didn't move soon, he'd lose more water to sweat than he could carry away.

He sipped from a collar tube that snaked through his shirt to a hip canteen, swallowed a sour gush of warm plastic-flavored water and rose into a crouch.

A rock wren trilled. A black-throated sparrow tinkled in the distance. He waited while a raven's shadow floated across the sand and gravel, and a solitary croak echoed down canyon. A cottontail nibbled spring grass in the shadow of a rock. The birds and rabbits were finding water somewhere.

Quimbly wore his remodeled SigSauer Streamfire hidden beneath the cargo pocket of his pants. Both the Sig's holster and the opening to its butt were carefully crafted to accommodate easy access. Rising to a crouch, he felt the gun's familiar, comforting weight shift against his hip. It had seen him through deadly times but didn't make him invincible.

Taking one crabbing step, he waited, took another and waited. Nothing threatened or stirred. Still crouched, he crept through a patch of cover and darted across open space.

Suspicious, the quail moved away from him, chirping and clucking. He waited. Still nothing.

Holding his breath, he squat-walked from scrub island to scrub island, working nearer to the solitary willow at the cave's mouth. With his legs cramped, he reached a vantage point where he could examine the small bowl of sand at the rock hollow's entrance. A lizard sprawled in the shade there, and tiny footprints formed a wandering lacework over the sand. Nothing betrayed human presence, nor gave Quimbly any excuse to leave.

Bent double, he broke cover, trotted across open sand and ducked inside the cave. Cicadas shrilled. Shadow engulfed him—cool relief. Moisture prickled his sinuses. *Water.*

Outside, nothing stirred. He dropped to a squat, sipped from his canteen tube and waited for his pulse to stop pounding, his eyes to adjust to shadow and his filters to focus.

As his breathing quieted, a sound echoed off bare rock, a tiny, tinkling, glorious *drip*.

It tugged at instincts and yearnings almost forgotten, memories of free flowing streams and fishing with Dad in thigh-deep rivers. That's why he'd come to this



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place—common sense forgotten—to hear that tinkling, see free water, smell it. *Drink it.* Splash it on his face ...

He stood on magical ground and imagined ghosts in the cave shadows: Indians, followed by white explorers, then settlers and last the university people. The water drew them all, but didn't save them, only tinkled like his sisters' laughter.

Quimply flinched from that memory, turned heel-to-toe and examined the narrow cave. The yellowed PVC pipe he'd detected outside ran past his hiking boots toward a blurred stain on the cave's farthest rock face. Beneath his filters the stain resolved into tiny rivulets of seeping water. At the wall's base a small pool had formed, and the end of the PVC pipe, broken and upturned, stood above it like a derelict fountain. Someone had intentionally stopped the pipe's flow to the outside of the cave, but how long ago was impossible to tell.

Quimply searched again for signs of disturbance. Rat droppings marked a faint trail over and along the dry pipe. A spider web fuzzed a fist-sized hole. Nowhere did he see human footprints or litter or smell human scent.

Straightening, he stepped towards the weeping rock, eyes darting and straining at shadow and light. Never trust standing water. He'd learned that lesson the hard way. Learned it fighting for the San Joaquin, evacuating the Sac Delta, defending Lake Tahoe, losing it all ...

He saw the faint crease in the sand. Tried to stop.

His boot hit the trip line. He reared back.

A blur fell from the ceiling, struck his arm and knocked him sideways. His chest tore. Weight swooshed past and then swung back, raising its own wind.

His feet skidded. A board levered from the cave's sandy floor and dumped him backwards.

Blood spurted. His head struck.

He woke to a duet of tinkling—a drip-dripping in the cave that played counterpoint to a canyon wren's song from outside.

The music faded. His head flared. His chest throbbed. His stomach roiled at the smell and feel of blood, slippery beneath his cheek, sticky warm beneath his clothes. Blood scent always made him see Mom—the way he'd seen her last.

A shudder seared pain down his left side. *No moving.*

But when he could, he raised his head, saw an iron bar—suspended horizontally above him on two length of rope—and jagged glass, wedged in rock debris and hidden by sand.

*That's* what he should have seen as he came into the cave. The sand didn't belong here, not in this amount below such a slow trickle of water, and any bigger gush would flush it out or filter it beneath the man made rubble. Stupid. He'd sprung the trap and lay impaled on a bed of old wine bottles. Whoever claimed this water knew how to protect it. He wondered—with no desire to learn the answer—how often they checked their snares.

Before his mind could blur again, he gritted his teeth, tensed his muscles and braced his uninjured left palm against jagged rock. Using its leverage, he lifted his upper body.

Fire tore his hip. His sob echoed off stone. But he rode out the pain with no way to avoid damage, no way for his filters to dispel the darkness threatening to engulf him again.

His breath shuddered in and out. His chest knotted. Spasms constricted his throat.

He listened to water drip. When he could breathe rhythmically again, he worked both arms alongside his hips and pushed up, raising his lower body as a unit, avoiding worse

slicing against the glass. His arms shook and swayed. Tears and sweat streamed off his chin.

He held on, worked one boot flat to the rubble and wormed it beneath his buttocks. Pain-blind, he stood, heart thumping ... and waited. No sickles fell. No land mines exploded.

He took a step. Nothing tripped him. Another step. Agony and terror stole his sight. Consciousness faded to blur.

He woke in the shade of the willow, his nose buried in sand that smelled of iron.

Lifting his head, glare blinded him, and he blink-blinked. But one patch of blur refused to dissipate, resolved into a tiny bit of animated fluff stalking away on six hairy legs. He'd look that one up at the truck. Truck?

Glare and blur. How would he get back to the truck? Easier bleeding to death where he lay.

His head sank. A breeze chilled the nape of his neck. Mesquite rattled and brush creaked. How long had he been unconscious for the wind to rise like this? Curiosity pried his lids open. More glare.

He should try to move. Maybe he wouldn't bleed to death. But when he stretched his hand to the shimmering sand beyond the willow's shade, heat scorched his fingertips and sapped moisture from his palm. It was too late... Two miles to the truck—he'd never make it, not now, not in his condition.

Maybe tonight, if he saw tonight. He slumped into rock and sand. Flies droned, feeding on his wounds. There were always flies—flies on Anna, on Crista, crawling inside Mom's mouth.

Why had she run? He'd told her to stay put, lock the house. But she hadn't listened, took his sisters and tried to drive out of town. Coming back from duty on the road blocks, he'd found them. A WPC patrol had broken through the south fence and made it to the highway before being stopped. If she hadn't driven into cross fire, maybe his sisters would still be alive.

Where did she think she was going? Stupid woman ... stupid, stupid woman ... left him all alone, killed the little girls.

"Bobby? Where are you going?" Her voice echoed through his pain, dumping him back to that morning in their darkened kitchen. Everything smelled of dust. Foil-wrapped cardboard covered the windows, reflecting sunlight and heat from the house. A fan hummed, stirring the air, but cooling nothing.

"Bobby, it's you, you and the girls that count."

"I know, Mom. That's why I joined. We've got to stop these Water and Power assholes. The LAWPC took Fresno."

The worry lines radiating from his mother's faded blue eyes deepened as he spoke. "Isn't your father enough?"

He shook his head. "They'll run us over like chickens in the road, Mom. Unless we fight, they'll control Sacramento and the big rivers before winter."

She stared at him for a long time. "I know." She'd gone into the bedroom and started fussing with clothes.

Dusk started him crawling in a haze of pain and shivering. The land still burned. Heat radiated from rock, and the sand blistered his palms. He squirmed as far as the nearest large boulder, then levered himself to his feet. Wounds tore, and blood burst through dried clots in an excruciating gush. Striped with shadow and red light, the wash blurred and danced, and the wind, having changed direction with the heat gradient, pushed at his back, pattering sand against his pants legs.

Exposed and standing still, he knew he presented a target to both man and beast. Cougars roamed here. He'd seen one this morning before he broke camp.



## Pools

*Move*, he thought. But it took several breaths for the message to reach his feet. Then he only shuffled, stirring up dust that the wind blew away in front of him, a thin, backwards rooster tail.

Twilight followed his creeping hobble down-canyon. Half the darkness was formed in the outer world, half closed over his mind—shutting out the pain, shutting down thought, narrowing his vision to the sunlit mouth of the canyon far ahead where the truck waited.

He woke on the ground and rolled to his back. The canyon rim shone in fine relief against a darkening, red streaked sky. Coyotes yipped in the distance. Bats darted and dined overhead, mandibles clicking. How far had he come?

He stared into dimness down-canyon and saw the peak of the house he'd passed this morning. *Not even half way*. Going to die. He already smelled of rot—one more body to warn off the next traveler.

Sand sifted. He closed his eyes, senses prickling, and breathed deep—too weak to run, no matter ...

Rustling sounded, less than a whisper and from two directions. Coyotes? A pack?

Pain stabbed his shoulder. His eyes startled open.

A sharpened stick hung above his face. A second pointed at his throat. Blinking against shock and dusk, he made out short, wiry bodies. *Children*.

He breathed in shallow pants. The sticks poked again, sharp jabs to determine the extent of his strength. Tears stung the scratches on his cheek. His hip throbbed, blotting out thought. A kick bounced his leg. He screamed.

That startled them back, startled him to some sanity. *Don't let them leave*. He wouldn't get up again on his own. But maybe they wouldn't kill him—moronic hope.

It took all his strength to move his hand to his pocket. The children closed in again. A stick followed his move, poised to strike. But he wasn't going for the Sig. Maybe he should, but he thought they were ready for that, would certainly kill him then, and no way would he use it on them.

He dug out his truck keys. A small hand snatched. He held on, trying to pull the child down. If he could get a grip ... But the little one hung back, and the bold one pulled free with a flash of white teeth.

"Give."

"Give, give," the little one chanted.

Their high, chattering voices tore the heart right out of him. *Girls*. Blinking, his vision sharpened by shock, Quimbly focused on rags and wild halos of hair.

"Give." A stick raised.

"No." He clutched the truck keys, regretting having used them as a lure. Idiot. "Bomb." He wondered if they could understand his croak. The oldest, the bold one, couldn't be more than ten years-old—Anna's age when she died—too young to know the world he'd been educated by.

"Give." The bold one leaned into his face again, her stick hovering above his left eye.

"Baa-omb." The word slurred from his thick and uncooperative tongue. *Dead*. He was dead. It would be so easy to let go. But God save him, these little girls—

The bold one leaned away, darting a glance to her sister.

"Help me!" But the pain blinded him, and when he came back small hands were pawing his shirt pockets. He forced his arm up just as one hand reached too deep.

A flasher blew—a bang and a tiny flare of light. With a wail, the littlest flung herself backwards. The older one sprang to her feet screeching and centered her stick on his throat.

The flashers were a mean little surprise that had saved his life before, but this time would probably kill him. He could see the girl clearly, perhaps a trick of his eyes or just the final brightening of the sky before it faded to black. Teeth bared, she snarled at him, and her stick shook as she glanced to her crying sibling.

"Not hurt," he said. "D-d-don't have to take." Teeth gritted, jaw trembling, he forced his hand up again, realizing as he did that he'd already lost the truck keys to the girls. "Candy." He fumbled free his belt pack. "For you."

The girl's stick flicked the pack away, jabbing and poking. When nothing happened, the smaller girl pounced on it. A moment later, the two were sucking on pouches of chocolate pudding.

Now, he thought, *run*. But it took all his strength just to breathe and try to think how to scare the girls away from his truck. Worse things than flashers guarded it.

He had to live—a little longer—make them listen to him. But he couldn't think.

Hands felt of him, their touch gentle. Water dampened his lips and trickled over his eyes and cheeks. He chased it with his tongue.

"Easy." The woman pitched her voice low.

Quimbly tried to open his eyes, couldn't.

"What's wrong with the truck?" Her hand brushed his forehead. It smelled of dust and creosote.

"Gas c-can-n-ister." He wheezed. She dripped water into his mouth, and it slid down his throat cool and soothing. "F-f-flare bomb." He lay very still, just breathing.

"You going to tell me how to disarm it?"

"L-l-leave me or k-kill?"

"What you want?"

He tensed the muscles in his bad leg—testing—and the world splintered into pain and red-streaked darkness. "Kill." His voice came out a shuddering whisper.

Sand crunched. He sensed her leaning nearer, smelled the sweat tang of her body.

"Why'd you give the kids the food? Is it poisoned?" Her voice had turned as brittle as summer grass.

"N-no," he said. "D-didn't w-w-want them ... " A breeze set him shivering, and he realized he lay bare-chested. "Stay ... away from truck."

Her hand settled on his forehead. "What's in it?"

"F-food. Water ... maps. Small c-comp." He worked his eyes open. Framed by the canyon's walls, stars glittered across the slot of sky above.

"Lots of food?"

"No. Hh—Headed home." He shivered again.

The woman moved. Her slender shadow grew huge for a moment, then shrank as she pulled the shirt from her back and settled it over him. Worn thin and sized small, the shirt didn't cover much, but it helped.

"You—" He breathed out. "—set trap?"

"Yes."

Pain faded. His body seemed to float. He wanted to talk. "Kill the ones at house?"

"One, yes. One, no."

"Going to eat me?"

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"Had your AIDS/BUL vaxes?" Her voice was matter-of-fact.

"Military," he admitted.

She spilled more water into his mouth without answering. "Anyone with you?" Her face hovered above his.

"No."

"You could have grabbed my kids."

"Pro-bly not."

"How do I get into the truck?"

If he didn't tell her, she'd try anyway, and he was the same as dead. "T-twenty feet back." He shuddered. "C-clap twice." Was that right? He changed it sometimes. "Whistle, high and sharp." He tried to demonstrate, only managed a hissing tweet.

She lay her fingers over his lips. "I'll figure it out."

He drifted, then startled. "F-f-forgot." His head rolled, eyes searching for her, heart panicked that she'd gone. "F-f-flasher—under driver's seat."

"That all?"

He thought he nodded, wasn't sure.

"You lying?" Her hand stroked his throat, her fingers digging into its hollows.

"No." He let his breath sigh away with his strength.

"Why?"

He liked her voice. "F-for the kids."

"Everything I do is for the kids. They're mine. Why?"

Tears started in his eyes, unbidden, unneeded, confusing. His sisters had been so tiny when the city's blew.

"Wasting water." The woman blotted his eyes and used the moisture to clean a gash on his chin. "Have kids?"

"Dead." He hadn't strength to explain.

"How'd you get that fancy pickup, guns, everything?"

So she'd seen the truck, maybe been stalking him since he arrived this morning.

"L-l-live—north. Old Nevada. More people there. Hire out." He didn't know why he answered, except for something soothing in her tone, something hopeful in her continued gentle examination of his wounds.

"What brought you way down here?"

"Father tracing daughter."

"Find her?"

"Yes." He knew she asked to distract him from her probing fingers.

"Alive?"

"No."

"He pay you even if she's dead?"

"B-b-before I left."

"And he trusted you to come back?"

"Repu..." Quimbly panted. "...tation."

She touched near his hip. He cried out, twisted over. When he could see again, he realized the girls were squatted in the dark near his head, had been listening all this time.

"This is the bad one." The mother put pressure on his torn hip.

"I didn't ..." He swallowed a sob. "... lie about truck." The next sob he couldn't swallow. "Don't hurt me."

"Sure." But she leaned into him, pressing harder on his hip, rivering pain down his leg. "You lie still. Nattie will stay. She won't bother you if you don't move. I'll be back. I hope you aren't lying, stranger. Maybe you could live yet." She shoved him flat.

Pain took his senses.

Red glow streaked the ridge above the canyon. One of the girls was tapping a stick against his right boot.

"Wake." The girl tapped again. "Wake." He forced his hand up far enough that the tapping stopped. The pair was squatted at his side. "We want Momma."

"Want Momma!" The little one mimicked the older girl.

He remembered a nightmare, a woman hurting him, but then finding him water, remembered telling her how to get into the truck. Now the little girls wanted *Momma*.

He panted, worked a hand up to his face and fingered grit from his eyes. *Momma* ...

It wasn't that far to his truck—if a person had two good legs. The woman should be back. He should be dead. She hadn't killed him ... probably wanted more information from him or didn't want dead meat rotting in the heat. He blinked and focused. The girls stared at him, grubby faces sullen and worried. Would they help him? He licked his water tube into his mouth, but it was dry. "Wa-water." The word came out a croak.

The girls looked at each other. In dawn light, their spiky hair stood up like demons' horns, and the oldest girl's scowl threatened violence. But she gritted her teeth and reached inside the button-fronted man's shirt she wore as both top and skirt. Rusty stains smeared the shirt's khaki front, and its hem had been frayed to fringe. He glimpsed pale naked skin as she pulled out a small canteen.

"You drink. We all go get Momma." The girl—Nattie, the mother had called her—shoved the canteen into his hand.

He grasped it, worked it to his lips and raised its butt enough to wet his lips. The water tasted of mold, and the canteen smelled of the child's dirty body.

A shadow crossed the sand. A little arm slid beneath his neck, and water splashed up his nose as his head arched back. He gulped and swallowed. The canteen ran dry. He drifted.

*Crack.*

The shot pulled his eyes open. The girls froze beside him like startled jackrabbits. For a moment, his breath wouldn't come. Then his heart hammered to life again. Nattie grabbed his right arm, the little one his left, and they tugged, heaved and drug him for cover.

Adrenaline distanced pain, and though it hurt so badly over there, where it was at, he shoved off with his good leg and crabbed his body forward in rhythm with the girls' tugs. With a final heave, they all tumbled into shadow beneath an overhang of rock and gravel, hugging the wash's wall as one.

*Crack.* The shot echoed up-canyon, no immediate threat. Quimbly fought nausea, fought shivers and shakes. The girls pressed against him, trusting him because he was weak, because their mother had left them with him and, maybe, because he'd fed them sweets.

"Momma." Nattie's eyes were as hard as afternoon sun.

Quimbly shook his head, let his hand slide down and explore the mess at his hip without trying to turn far enough to see it. He was alive and stronger than he should be, and the padding he felt told him why. The woman had bandaged him, stopped his bleeding, maybe even cleaned the wound. He remembered fierce pain, *Momma* shoving him flat and a chemical stench ... How long had she intended to keep him alive?

The youngest girl poked his chest. He blinked her too-close face into focus. She frowned and stared. "Momma!"

He nodded. "All right. Ch-check around f-first."

The older girl nodded, rose into a crouch and slipped from beneath the overhang. Quail piped. A thrasher warbled. A



## Pools

daddy-long-legs wandered across the gravel aggregate above Quimbly's face.

A small hand flashed beneath the rock overhang and signalled Quimbly out. The younger girl scuttled over his legs into the open. He dug his torn hands into sand and gravel and hauled himself out after her.

Nattie gnawed her lip, but let him take his own time about levering himself to his knees—which left him blind with pain. Gripping a thick root dangling from the wash's side, he pulled himself onto his feet. His left hip wouldn't hold any weight, objected to the drag of his leg. But he leaned into the wall of the wash, let Nattie slip an arm around him and hobbled one step, then another, with his breakfast of water rising in his throat.

"Diggy." Nattie waved to the smaller girl. "Go. Hunt." The younger girl vanished into the wash's low scrub—a slender shadow in a too big, dirt-tanned, over-sized T-shirt.

Quimbly hobbled, teeth gritted, and missed the weight of the Sig on his right leg. The shots that had startled them into hiding had not come from his gun. He almost wished they'd sound out again so he could identify the weapon now that pain had him all too awake. Maybe *Momma* was only hiding out, playing it safe, and he was leading her children right into dying. But if he didn't go with them, they'd go hunting her alone. Probably they'd even be safer alone. But maybe ... maybe not.

Nattie kept him against the wash wall, and they staggered nearer the death house he'd passed yesterday—such a long, long time ago. "Y-your house?" He asked the girl.

She cocked her head and stared up at him, her hard dark eyes questioning.

"Y-you live that house?"

Nattie's eyes rounded, and her mouth drooped down. "Momma's." The girl tugged him on.

He walked, let gravity straighten his throbbing hip and settled his weight bit by bit onto that leg. It held, more flesh torn than muscle. But the pain knocked him down.

"No-no." Nattie pulled.

He reached blindly above his head, found a bushy handhold, drug himself up and opened his eyes as Diggy slid up at her sister's side.

"Momma." The smaller girl whispered and pointed down canyon. "Men."

Nattie let Quimbly fall back, and both girls disappeared into the prickly scrub of the wash's bed. Braced like a dog, Quimbly sucked a breath and began to crawl. He hadn't gotten two feet when both girls were back. This time they didn't try to get him to walk, just scuttled along in front of him, levering rocks out of his way, bending thorny branches from his path and flipping a rattling rattlesnake past his head.

Sun burned his back. His head pounded, and his breathing sounded like an old fashioned vacuum with something stuck in its intake. But over his wheezing and skretching, he heard hoarse laughter and a low scream of rage.

The girls dropped flat in the gravel. Quimbly rolled onto his good side, canting his head. They were on a slight rise above the rest of the wash here. But ahead a twist in the canyon walls blocked their view of the lower wash. Nattie poked his ribs. He glanced along his body at her.

She was holding his Sig on the palms of both her hands.

He drew in a long breath, keeping it silent. The effort made his vision glitter and waver, but through the glitter he saw his hands take the Sig, release its safety, check its power readings, prime it and raise it in front of him as he rolled onto his belly and aimed in the direction Diggy was pointing.

Gravel crunched. A baritone growl grated through bird cheeping and bug clicking. "Come on, now. Water first. Then more fun. We know you've got water."

Quimbly caught movement and a flash of red through an acacia's clawed branches. Rounding the twist in the wash, three men stepped into sight, holding a short, dark-haired woman between them—*Momma*, Quimbly supposed. In the dark, blinded by pain, he'd never seen her face. Now it was bloodied and battered, and her clothes were gone except for the remnants of a man's summer undershirt and the boots on her feet.

The men wore stained and faded, hole-pocked army fatigues—common dress in the low desert, which harbored a lot of the LA Water and Power Corps deserters who fled along I-40 to disappear into the Mojave. The lead man's belly lapped over his belt and black bristling beard hid his face.

Quimbly gripped his Sig and shook. WPC ... He'd fought for the Northern California Drainage Coalition. NCDC had only been out to protect the water. WPC intended from the first to kill and get its people killed, reduce California's population and reduce the demand for water. It had worked. At least it had reduced his family's population. An eighteen-year-old orphan could generate a lot of hate. He'd been no innocent during the fighting. And his rage, he realized, wasn't spent, not even after fourteen years.

Momma she could almost forgive the bastards. She'd made her choice. And Dad had died fighting, taking his own way out of pain. But Quimbly couldn't forgive WPC for Anna and Crista's deaths—not ever.

As the men towed Momma past a clump of prickly pear, she lunged into the towering, beer-bellied leader, almost shoving him onto its spines.

"Bitch..." A beefy, tattooed arm raised.

The Sig spoke in Quimbly's hand before he knew he'd fired. If he'd aimed, he supposed, he'd have missed. But blood spread a quarter-sized circle on the fat man's chest where a lung should be, and the two other men hit the ground, hands reaching after weapons.

*Whap-whap. Whap-whap-whap.* The Sig snapped off shots, its sensors targeting for him now that he'd begun the fight.

That fast, Momma stood amongst dying men.

Quimbly's breath escaped in a ragged rush. The girls burst away from him, running for their mother.

"N-nnn ..." They were gone before he could stop them.

Heart thumping, Quimbly saw Beer-belly's hand raise. A sleek projectile muzzle wobbled toward Quimbly ... and the little bodies hurdling between him and it.

He hadn't a shot, would hit the girls if he tried. But he raised the Sig.

Momma's booted foot hit Beer-belly's wrist. The bullet gun sailed into morning light.

The bastard screamed. Nattie lunged. Steel flashed, and Beer-belly's throat gaped open.

Nattie crowed and stabbed her bloody knife at the sky.

Momma snatched her children up, staggered for cover and disappeared.

Quimbly sank into burning sand. They didn't dare come back for him today. When the sun had done its work, made things safe, then they'd come scavenge.

The Sig was almost too heavy to turn. But he cocked his wrist and stared down the stream-fire's barrel. All the human innocence in the world had died. Nothing he did could save it. His sisters were luckier dead than living to learn to slit a man's throat and laugh.

## Absolute Magnitude

A boot slammed his wrist. His head flopped over. He stared up at Momma. Eyes swollen almost shut, one breast bleeding, bites purpling her neck, she dropped in the sand, touched his cheek and shook her head.

"No." She pulled off the last of her undershirt and spread it across his face for a shade.

Quimby woke in his truck. His hip ached, but he recognized the dulling effects of drugs. Heat shimmered beyond the wench mounted to the 4XTraX's front bumper, but he and the truck's brown and tan splotched cab sat in morning shadow.

Nightmare blurred his vision. Little girls' voices urged him to move, hands tugging and hurting. But he blinked and was alone again, surrounded by cracked vinyl and shot-proof windshield glass. Staring out at palo verde and the mouth of the canyon, he watched bats swoop and flutter in evening light. When he looked down, he saw that bandages wrapped his hands; but the cuts showing beyond them had healed. He'd lost another day or two or more, and the truck didn't sit where he'd left it.

He shifted his weight off his hip and noticed a pop-top can of peaches and a strip of something dried and brown sitting on the

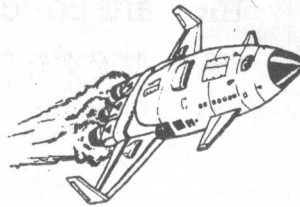
truck seat beside him. On the dash, the SigSauer weighted a neatly lettered note: *Your water tanks are full. This thing runs like a dream. Ride it on out. You did a nice thing. So don't come back. Just send your prayers. P.S. Took all your salt, but left your comp. Mines bigger. So's my gun.*

His head sagged, and he cried. His mother had known, and only her timing had been wrong, not her choice. She'd deserted him only as he'd deserted her.

Shaking, he powered up the truck one-handed, and the feel of its familiar throb and subaudible hum spread relief down his spine. He was running again, but that's what the woman wanted. By distrust, the woman survived. So her girls survived. So the human species continued. "Our Father in Heaven ..." Some asshole had translated that line wrong.

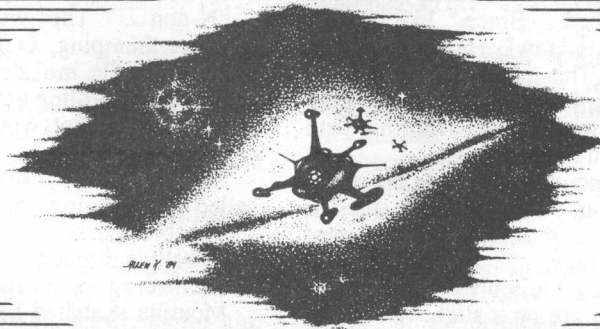
Yet this woman had kept him alive. And this morning, it was all right to live. Innocence was dead, but human decency had its moments still.

Quimby drove out, bouncing and lurching, flailed by pain. Finding pavement again, he rested. Joshua trees bent above the truck, their arms raised and bristling. He understood, turned north, hunting the road home.



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Roger Zelazny's

Hymn to the Sun

An Imitation

MARGINALIA



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Janet Kagen is a Hugo Award winning author.  
She is also the author of the Star Trek Novel *Uhura's Song* and *Hellspark* a Tor book.  
This is her first appearance in the pages of *Absolute Magnitude*.  
Janet is a trained professional please don't try any of the stunts portrayed in this story at home!

## FERMAT'S BEST THEOREM

by Janet Kagan

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—for Isaac, a math story,  
and for Andrew Wiles,  
whether or not,  
for the great grin.

Somewhere in the distance, Peter Kropotkin was saying, "...Divide *this* term by this term..." Chalk slid and squeaked.

Laurie Adamansky shifted in the hard wooden chair. Abstracted, she laid aside her pencil to touch the snap of her breast pocket. Secure. Beneath her fingers folded paper crackled, the sound startlingly loud to her. No-one else, of course, noticed. Why would they? It was the sort of April morning, bright through the chalk dust of a board-full of equations, that no-one noticed much of anything.

She frowned slightly to herself and added, And why am I acting as if the damn thing might leap out and get away from me? I came here with the full intention of handing the thing to Pete after class, didn't I?

Peter went on with his talk. Laurie picked up her pencil and tried to concentrate on what he was saying. The staccato tack-tack of chalk came to an abrupt halt, but Peter's voice continued as he turned to face the class. Still talking, he reached under the desk.

I'm probably going to embarrass myself. Just another crank solution, Laurie—you divided by zero somewhere and it's Spring and you can't see the mistake for looking.

From beneath his desk, Peter produced a large cylindrical object. Laurie noted, without really seeing it, that the object was a tomato juice can.

Last week Peter had handed her just such a solution: "Here, kid, here's a puzzle for you. Somebody claims to have solved your favorite problem. I've been prodding it for a week—and I'm damned if I can find what's wrong with it."

Peter, in real-time, still talking about the equation on the board, held up his left index finger as if to point to something. Instead, he laid it extended on the edge of his desk.

"Does there have to be something wrong with it?" she'd asked.

"You tell me." And he'd grinned at her and handed her the sheet of paper. It had taken her two days, but she'd found what was wrong with it.

With his right hand, Peter raised the can of tomato juice high above his head. "So you see," he said in conclusion, "what we have here is a very simple but very elegant solution to the problem."

And with that he slammed the can of tomato juice downward. It struck his extended index finger with a *BAM!* that left his desk reverberating. Chalk rattled across in front of him and fell to the floor, rattling to a halt only at the arch of Jimmy Rodriguez's sneaker. Jimmy sat up as abruptly as Laurie had, shocked by the sound and sight; the chalk crunched beneath his foot.

"Now," Peter went on, "let me show you what we can derive from this..." He set aside the tomato juice can, picked up an eraser in his right hand, and went at the board again.

The class, as one, shuffled and paid attention. Jimmy shot Laurie a covert look, eyes widened. Like Laurie, he was waiting for Peter to scream in pain.

Laurie looked past him. No, Peter was not going to scream in pain. She looked at the tomato juice can: it was dented just where it had struck Peter's finger. She looked back at Jimmy, shrugged and smiled. Another of Peter's puzzles—why *hadn't* he smashed his finger to smithereens?

Although Peter had obviously intended the stunt as an attention-getter, the puzzle served Laurie as a distraction until the end of the class. When she rose and bent to gather up her books, the paper crackled in her pocket.

Before she could lose her nerve again, she followed at Peter's heels, leaving the rest of the class to examine the dented can. Without a word, she trailed him to his office and in. Once inside, she couldn't bring herself to open the conversation.

"Is something wrong?"

At the words, she brought her attention at last to Peter, realizing with a start that her manner had caused him genuine concern.

"Uh, no. Nothing's wrong. I mean, nothing's *wrong* and that's what wrong."

Peter grinned at her. "I hate spring," he said cheerfully. "Spring is particularly hard on math students." He settled into his chair and tipped so far back as to look precarious. "Sit down. Pretend it's winter."

She couldn't sit. Instead, she unsnapped her breast pocket and withdrew the paper, now well-crumpled. She unfolded it and made a futile attempt to smooth it on the edge of his littered desk. "Here," she said. "I think I've got it." As the words came out, she found her shoulders slumping. "I found what was wrong with the one you were offered last year—you find what's wrong with mine." She paused. "I *can't*. I've tried and tried, and it still looks right to me."

Peter reached across his desk to retrieve the paper she'd laid on it. A stack of papers slid to the floor. Laurie jumped to lessen the disaster—it gave her a good excuse to ignore Peter's perusal of her work.

"Aha!" He peered over the edge of the desk at her. He wasn't going to let her off the hook that easily. "Yet another solution to Fermat's Last Theorem! At least this one is the right length."

That was a running gag. Recently, all the proposed "solutions" had been computer-generated, running to pounds of printout paper and covering select cases of the theorem only.

Fermat had claimed to have a solution easy enough (by implication) to recall but "which this margin is too small to contain."

The crackpots too tended to proofs that covered six or seven pages, if you didn't count the photos and resumes they invariably included with their packages.

"Off-hand, I can't see anything wrong with it," Peter said.

Laurie straightened, so fast she almost lost the papers she'd been retrieving. "Neither could I. I've been over it a thousand times now. But, as you said, it's spring. So there must be



## Absolute Magnitude

something wrong with it. I just can't find it." With exasperation, she slapped the stack of papers back onto Peter's desk.

"Tell you what," Peter said. "You go have a hot date—have several!—and let me worry about it. I'll find your mistake, if it's there."

"It had better be," Laurie said, grinning back at him.

Peter's grin broadened. "Why?"

She hadn't stopped to consider that. That certainly was the way she was behaving. Not as if she'd solved something but as if she'd let some cat out of some bag. It took her a minute to pin the feeling down.

"Oh." She could feel her grin turn sheepish. "That's why."

"Why?" he asked again.

"That was the problem that lured me into mathematics as a major. Something that looks so easy and yet has remained unsolved for so long. Something you could solve with pencil and paper—none of this fourteen days' worth of computer time. Something romantic..."

"'Romantic'? That's not a word I hear applied to math very often!"

"Romantic. Peter, the man scribbles this in the margin of his book, then he goes off and gets himself killed in a duel, and the solution dies with him? If that's not romantic, I don't know what is. Helluva lot more romantic than what passes for a romance novel these days!"

"I never thought of it that way." Peter leaned back, quiet for a long moment, then he nodded. "You're right. I got hooked on Fermat's Last Theorem too. 'Romantic' never occurred to me as a reason but I believe you're right, in my case as well."

He leaned forward. "So why would you be happier to be wrong about this?"

"For all the same reasons. You got hooked by Fermat's Last Theorem; so did I. If I've got it, what's to hook the next generation of kids?"

"I see."

Once begun, Laurie found she couldn't stop there. "And think of all the things that have been found by people who were looking for the solution to that—the theory of ideals, for instance!"

"Yes. You're afraid that, if your solution is right, you'll be taking away a valuable...prod."

"At least a valuable puzzle. And puzzle-solving is what it's all about or you wouldn't be slamming tomato-juice cans on your finger. How is your finger, by the way?"

He held it up. "Never felt better."

"I thought as much. Well, thanks, Peter. I feel better. I think I'll go promote myself that hot date you suggested. Please let me know when you find where I've divided by zero, okay?"

Half a dozen hot dates later, Laurie's springtime morale had perked up wonderfully. None of them, however, distracted her from noticing that Peter had not yet found an error in her work. She turned her attention to other things, most noticeably tomato-juice cans. She smashed two pencils before she thought to check the dented can still sitting prominently on Peter's desk. Aha! The can Peter had used was a different brand—it did not have the reinforcing ridges that were used in the brand she'd bought.

"I'm not telling," said Peter, who'd come in late.

"I don't expect you to. I expect to solve it myself."

"Watch your fingers in the meantime." He gave her hands a significant look. "I see you have been."

"Kids! Don't try this at home!" I've been watching my fingers but I've seen an awful lot of splints this week. Jimmy Rodriguez was sporting two today!"

Peter chuckled. "I know. I should be ashamed of myself but I'm not. I'm ashamed of him!"

"I'll take that as a clue. It can't be solved by experimentation. It has to be solved by theorem. Speaking of theorems..."

"I had to call in assistance. You have a car, don't you? An old friend of mine is coming in on the six o'clock train. Werner Hochheimer. Any chance you could pick him up for me? If you do, I'll invite you to dinner with us."

"Uh. Peter? That's like asking could I spare a day for Albert Einstein. Of course I can pick him up, only—Peter, my car's an old clunker—I—"

"Werner doesn't notice things like cars. Clothes, either, but don't wear bluejeans—the *maitre d'* will. It's one of those pretentious places." He scribbled on a piece of paper. "That's the train and the time; here's the address of the restaurant. Meet you there."

Laurie was too astonished to say anything.

Peter said, "Don't worry. The food's great. I didn't pick the restaurant for its dress code."

Just outside the door to Peter's office, Laurie had a severe attack of giggles. Peter was easily as famous as Werner Hochheimer. The only difference was that she knew Peter, so she thought of him as "Peter" not as some icon. So, rationally, she could get to know Werner Hochheimer as "Werner—" No, even her mind stubbornly refused to accept the idea of Laurie talking to Werner, which made her giggle again.

Look at it logically, she tried to convince it. Peter is a friend of—Professor Hochheimer's. At least they're both in the same club. Which bogged Laurie down all over again. That club was "The Marginalia," and membership was by invitation only. It consisted of seven of the most important mathematicians alive. The curious thing about it was that it didn't consist of all the important mathematicians alive. Laurie had never been able to determine the criteria for membership and had concluded it was a drinking club of sorts. Which meant that Peter was a real friend of Professor Hochheimer's—

Well, that logic hadn't worked. Giggling, Laurie went off to her 3 o'clock class. It was spring, after all. Not even Peter expected her to be rational in the spring. Spring created a sort of vacuum that sucked your mind out in a dozen different directions at once.

Vacuum! That was it! If you bring the can down fast—at greater than  $1g$ —then the can is moving faster than the liquid can fall... She'd have just enough time after her class to change, test her theory, and pick up Professor Hochheimer.

In magazine photos, Professor Hochheimer looked imposing. In person, Laurie found him...well...cute. He was a little rotund man with lively eyes. Laurie wasn't more than five feet tall herself but she overtopped him. The first thing he asked—after her name—was what sort of hijinks Peter was pulling in class these days. By the time they'd gotten Professor Hochheimer's luggage into the car, she was "Laurie" and he was "Werner."

"That many splinted fingers! I marvel at your classmates—for their determination rather than brains, I'm sad to say. I note that your hands show no such redecoration. Are you not interested in Peter's puzzle?"

Laurie had pulled the car to a stop at a red light. She turned to him, raised an eyebrow and grinned.

## Fermat's Best Theorem

His face lit in a dimpled grin of its own. "Aha! You've solved it! I see! Then you'll give me a demonstration and we'll see if I can solve it as well, shall we?"

"Okay."

"Tell me," he said, as she started the car in motion once more, "have you heard the one about the engineer, the chemist, and the mathematician?"

"Any number of them. You tell me one, I'll tell you one."

"An engineer, a chemist, and a mathematician all work for the same small firm. Now, the manager of the firm has a very bad habit—he smokes cheap cigars. Worse, he tosses his cigar butts in the wastepaper basket. The result of this, as you might well guess, is the occasional wastepaper basket fire.

"Well, the first time, the fire is discovered by the engineer—who tips over the wastepaper basket and stamps the fire out."

Laurie giggled, already appreciative. A couple of her hot dates had been engineers.

"The second time, the fire is discovered by the chemist. Now, the chemist quickly calculates the volume of the wastepaper basket, the amount of flammable material in it, and measures out the exact amount of water necessary...so that the very last drop of water extinguishes the very last spark..."

Laurie turned the car into the restaurant parking lot and backed it into a space. "Go on, Werner. I can listen and park at the same time."

"And the third fire is discovered by the mathematician...who looks down at the flames and says to himself, 'Hmm. Wastepaper basket fire. I can solve that.' And he walks away."

Laurie hadn't heard that one before. She exploded into laughter. "I spoke too soon. I'm glad I wasn't still in the process of parking when you got to the end. That one's a potential fender-bender!"

Werner Hochheimer beamed at her.

The two of them were still grinning as they walked into the restaurant. It wasn't until halfway through dessert that Laurie started laughing all over again.

Peter eyed Hochheimer and said, "Spring. You remember what Spring does to grad students?"

"No," said Laurie. "I just got the second part of the joke. I asked a medievalist friend of mine once what the Latin motto of that club you two belong to meant. She said it translated to 'I can solve that.'"

"Caught," said Peter.

The camaraderie of the previous night carried Laurie through her morning classes despite the rainy turn in the weather and the shoulder-aching heft of her tote bag—in with her books she also carried a tomato juice can, size large, ribless.

She had promised to meet Peter and Werner in Peter's office before Peter's class. Luckily, she had a free period to do it in.

"Laurie, pull up a chair and sit down." Peter looked unusually somber. Seated behind Peter's desk, Werner Hochheimer was perusing a piece of rumpled paper. He too seemed somber compared to the high spirits of the previous night.

Frowning, Laurie moved a stack of papers off the third chair, drew it up, and sat. "What's wrong, Peter?"

Werner Hochheimer looked up from the paper, beamed at her. "Nothing's wrong, Laurie. Your solution is quite correct."

Laurie let go her tote-bag. It hit the floor with a tremendous thunk. "The Fermat? You mean my solution to Fermat's Last Theorem is correct? It can't be!"

"An odd choice of words," Werner Hochheimer said. "Why, pray tell, 'it can't be'?"

"Because that ends the puzzle. Because—" And before she knew it, she was telling Werner Hochheimer the same objections she'd raised to Peter. How Fermat's Last Theorem had drawn her into the field, how the search for a solution had led to such other fascinating developments. "But mostly, I wonder what's left as a prize for the younger kids."

Werner Hochheimer was nodding. "I had the same concern. So did Peter. Now you must make the decision. I assure you, your solution is correct."

"I solved it." The words came out flat...and then the realization grew and grew until the effect was headier than a dozen Springs all rolled into one afternoon. "I solved it!" She got to her feet and stood ten feet tall at least.

From her elevated position, she looked wildly down at the two men. "I feel like Alice in Wonderland," she said, "I'm surprised my head hasn't hit the ceiling."

Peter and Werner were both smiling up at her, their expressions oddly expectant. Puzzle, she thought, another of Peter's puzzles. Oh, my! It had taken Werner Hochheimer too short a time to determine that there were no errors in her solution.

She sat down abruptly. Putting her elbows on the edge of Peter's desk, she stared intently at Werner Hochheimer. A small club...of seven mathematicians only...its motto "I can solve that!"

"Oh, my," she said aloud. "I'm the eighth to solve Fermat's Last Theorem."

"No, Laurie," said Peter sharply. "You're the first. That was our agreement. If you decide to publish, it's your name that goes in the math books. You solved Fermat's Last Theorem."

"And the Marginalia disband," she said.

"This is true," said Werner Hochheimer. "There would be no longer be a criterion for membership."

"Or," Laurie felt the grin spread clear across her face, achingly broad, "you could make me a member of the club."

"Indeed, we could." Werner Hochheimer reached into the pocket of his jacket and brought out a small jeweler's box. He handed it across the desk.

Inside the box, Laurie found a small gold and enamel pin. Written in a curve around its edge was the Latin motto of the Marginalia. "I can solve that!" she said. Then she looked up to meet Werner Hochheimer's eyes. "I accept," she said.

"Wait a minute, Laurie," said Peter. "You must understand that this means you will not publish your solution. You must understand that this means the next person to solve Fermat's Last Theorem will be the first person to solve it. You must understand that, aside from your investiture in the Marginalia, you'll get no applause."

"I understand, Peter," she said solemnly. Then with mock outrage, she added, "You think I'm a one-shot? I'll get my applause sooner or later—and my name in the math books, too."

"Take some time. Think about it before you decide."

"I don't need to. I've done my thinking about it. I've spent the last few weeks more worried that you wouldn't find errors in my solution than that you would." She took the insignia from its box and pulled the cap from the pin. Handing the two pieces across the desk, she said, "Pin me, Werner?"

Grinning, he came around the desk to do so. Then he stood off to admire his handiwork. "There. We're pinned. We'll do something a little more formal when we all get together at the next Association conference but, meanwhile, enjoy it."



# Absolute Magnitude

"Oh, I will!" She couldn't help but reach up to touch the pin on her collar. "Hey! Are all eight solutions identical?"

"Some are more elegant than others. Don't worry, you'll see them all."

A loud sound from somewhere beneath the papers on Peter's desk startled her.

"Alarm clock," Peter said, fishing it out to turn it off. "Class. Want to sit in, Werner?"

"Yes." He winked at Laurie, who winked back out of pure good spirits. "I haven't seen one of your Spring puzzles since that conference in Buenos Aires."

Through the hallways, Werner Hochheimer treated Laurie to a lively description of Peter's hijinx in Buenos Aires. Laurie was still laughing when they reached the classroom.

As always, Peter went first to the blackboard to erase the couplets Meijin Thomas always left behind. Laurie settled Werner Hochheimer in her usual seat, motioned Jimmy Rodriguez over one and plopped her tote down to reserve herself a seat next to Werner.

Instead of sitting, she fished out the tomato juice can and, cradling it in her arm, she walked to the front of the class. Peter

turned from the board just as she set the can down on the desk with an audible thunk.

Werner Hochheimer watched, twinkling and patient. Behind her, she could feel Peter's eyes as she balanced the huge can in her right hand, getting the balance just right.

She laid her index finger on the table. In front of her the class held its collective breath as she raised the tomato juice can high.

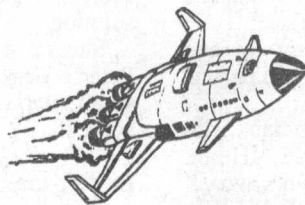
She who hesitates, Laurie thought, gets a mashed finger. And with that she slammed down the can of tomato juice as hard and as fast as she could.

Blam!

Everyone in the class gave a satisfying wince at the sight and a jump at the sound.

Laurie righted the indented can and set it once more on the lab table. She turned to Peter. "I can solve that," she said, just loudly enough for the rest of the class to hear. Then she took her seat next to Werner Hochheimer.

He led the applause for her.



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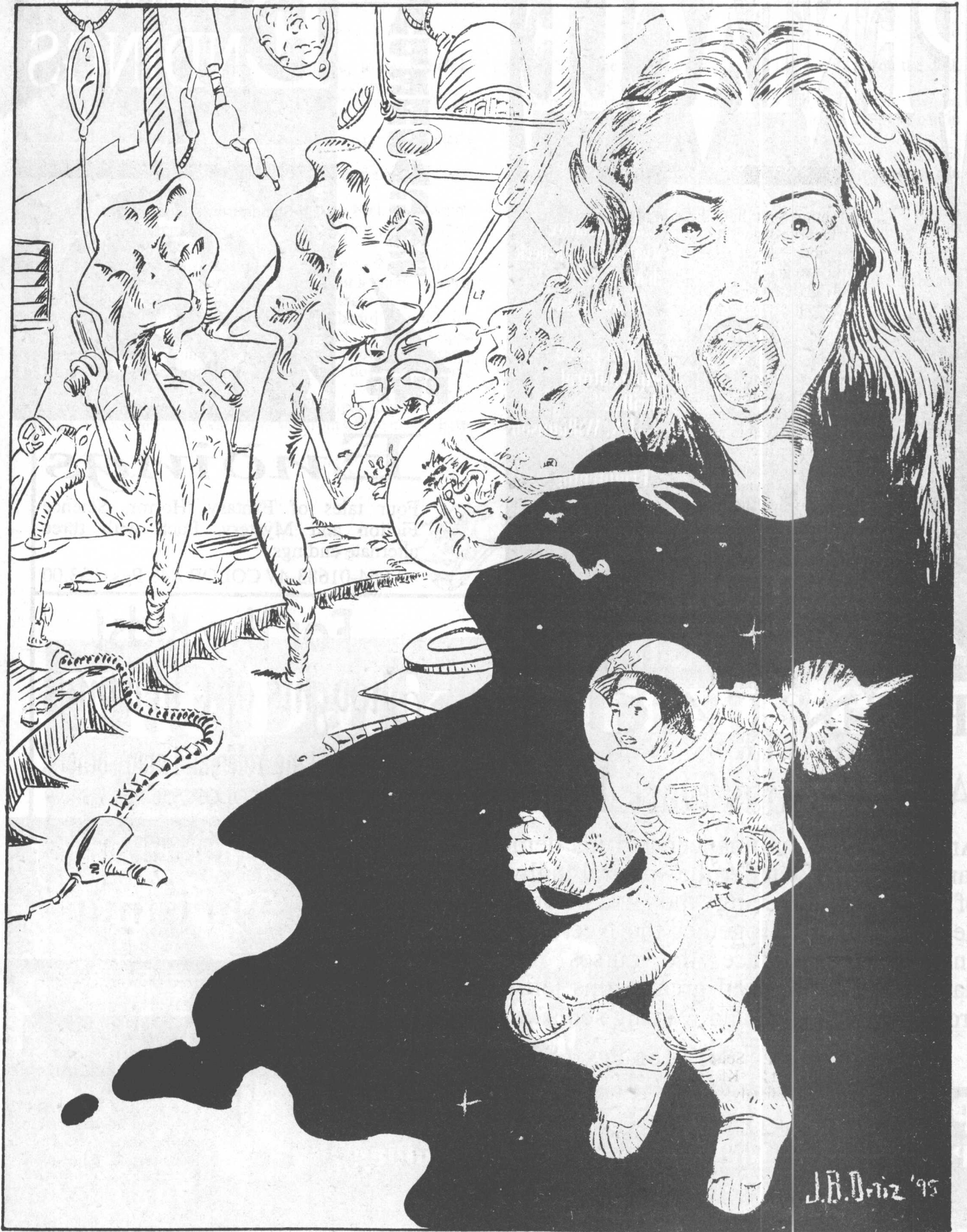
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J.R. Ortiz '95



Warren was reluctant to publish *Siblings* in the pages of *Absolute Magnitude*, but everyone associated with the magazine that read this story told him that he had to. After much discussion, we were able to convince Warren that if someone else had submitted this story to him he would have purchased it without hesitation. Warren Lapine's work has appeared in *Pirate Writings*, *Fantastic Collectibles Magazine*, and the *Vampire* anthology *Blood Kiss* as well as many other publications.

—Angela Kessler, Associate Editor

## SIBLINGS by Warren Lapine

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Commander Tammy Scott held the bridge alone. It was mid watch, her least favorite watch. She fought down her anger. There wasn't any good reason for it. Even the Captain pulled an occasional mid watch. Why did she feel so angry? She'd been angry a lot lately, and whenever she stopped to think about why she was angry, there wasn't a reason.

It certainly wasn't because of the hard work she was putting in on mid watch; the computer did all the real work, she just monitored the screens. If there were an emergency, she'd take over, but emergencies were few and far between.

"I came out here for excitement," she murmured to herself. "What a laugh." The only thing more dull than her life before joining the Navy was her life since joining.

She'd been trying to escape. . . . Trying to escape what? Tammy had been asking herself that question more and more. She hadn't realized it when she'd signed up, but she was certain of it now. She was running away from something and she didn't know what it was. That frightened her. What could make her run to the stars? How could she be driven so hard by something she couldn't put a name to?

"I hate this watch," she said to herself. "Nothing to do but think." But there wasn't anything to think about. Just a feeling, a feeling that she was missing something. Something so profound that it could shatter her entire world.

"Commander Scott," the computer said in its androgynous voice. "A ship is approaching us on our port side."

Port side? That wasn't possible. The *Antigone* was as far out in space as humans went. There were no inhabited planets in this sector. Where could the ship have come from? Tammy found the object on the screen. "Computer, are you certain the object is a ship?"

"The object has changed course three times since it was first observed. Degree of certainty is ninety-eight percent."

"Check hailing frequencies."  
"I have been monitoring all hailing frequencies since we left New Windsor. We are not being hailed."

Tammy looked at the ship on her screen. At this range it was nothing more than a blip. Ships simply didn't approach one another without hailing. This was not good.

"What can you tell me about the approaching vessel?"  
"The vessel has changed course three times. It is some 12.67 times the size of the *Antigone*. As it does not have an Ebling wake, it cannot be using an Ebling drive. Therefore it is either a natural phenomenon, 2 percent probability, or it is a ship of non-terrestrial origin."

A ship of non-terrestrial origin! Holy shit, an alien vessel—and on her watch! "Sound Red Alert!"

"Sounding Red Alert." Klaxons sounded and red lights flashed. Almost immediately the captain's voice cut through the din.

"Vasques here, what's going on, Number One?"  
"Captain, we've got what appears to be an alien ship approaching us."  
"On my way."

"I am now following Standard First contact Procedure," the computer announced.

Standard First Contact Procedure? What the hell was that? The captain entered the bridge, followed by the Second Mate, Dan Flemming. "I want an update, now!"

"Sir, at approximately 0324 hours an object appeared on our screens. It has changed course three times. It is ninety-eight percent probable that the object is a ship. As the ship doesn't have an Ebling Wake, the computer believes the vessel to be of non-terrestrial origin, and is now following Standard First Contact Procedure."

"Thank you, Commander Scott. Anyone know what Standard First Contact Procedure is?"

No one answered.  
"Well, let's hope that whoever wrote that procedure knew what they were doing."

"I have located a sub-light transmission," the computer announced.

"Commence translation procedure, and begin sending out our own hail at once."

"Commencing translation procedure."  
"Scott, what can you tell me about the alien vessel?"

"Not a lot from this range, Captain. The ship doesn't appear to be armed. At least, it isn't armed with anything we would consider weapons. I haven't the slightest idea what it's using for a propulsion system."

"How long until rendezvous?"  
"At present speed, two hours and seventeen minutes."

"Okay, I'm open to suggestions on how to proceed."  
"I suggest continuing to monitor the alien's transmission and hope we can crack their language. Should we find ourselves in a position to meet with them, I think we should do so on neutral ground."

Vasques nodded and looked to Flemming. "Flemming?"  
"I agree with Commander Scott. There isn't a whole lot we can do until we can communicate with them. At the moment they seem unaggressive. As long as they remain so, I think we should look on them as friendly."

Vasques nodded. "I agree. Computer, send a message to all inhabited planets informing them of what's going on here."

"Captain," the computer said, "the alien ship has just started transmitting in English."

"Their linguistic program beat ours," Flemming whispered.  
"Let's hear it." Vasques said, concern showing on his face.

"Praise be to the Life Giver, we are not alone. Praise be to the Life Giver, we are not alone."  
"That sounds encouraging," said Vasques. "Open up a hailing frequency, now. Alien vessel, this is Captain Juan Vasques, commander of the *E.F.S. Antigone*. On behalf of the human race, I welcome you and extend our good will."

"*E.F.S. Antigone*, this is Captain Critt of the Trenar people. I accept the goodwill of mankind and say that it is good to meet a sibling among the stars. Praise be to the Life Giver. Now let us allow our thinking machines to communicate, that we might

# Absolute Magnitude

learn more of one another. We do not wish to surprise or offend out of ignorance."

"That went well," Vasques said, wiping sweat from his forehead. "Scott, you're our liaison officer, monitor the computers' interaction and be prepared to brief me upon completion of transmission."

Tammy ordered the computer to display the most pertinent information from the Trenar transmission onto her screen. She was amazed to see that the Trenar had broadcast the coordinates to their home planet as well as the specs on their propulsion system. She absorbed everything she could as it flashed across the screen. After about an hour, it was finished.

"Report."

"First off, sir, they've given us the coordinates to their home world. They have colonies on two of their world's three moons, but that's it. They're new to space. Their propulsion system is atomic, but nothing like any human engineer ever designed. It seems to function by manipulating atoms rather than destroying them. I didn't really understand the math. They're oxygen breathers, they evolved from an ocean, and they're the first life form we've encountered that doesn't have DNA. They resemble a one-armed daisy on a pogo stick and are vaguely mammalian. They only have one government, and as far as I could tell, they've never had more than one government. That's everything."

Vasques expelled his breath. "Precious little. At any rate, they seem trusting, which is a good sign. And if they have only one planet they shouldn't be a threat militarily."

"Captain, we're being hailed by the Trenar," Flemming said.

"Let's hear it."

"E.F.S. *Antigone*, we have received your transmission and rejoice that we are much alike. We have truly found a sibling. This moment shall be remembered by all, forever. Let us meet that we might touch souls."

Touch souls?

"Captain Critt," Vasques said, "We too would like to meet. Do you have a shuttle?"

"Affirmative."

"Then let me suggest that when our vessels are within a kilometer of one another, we each send out a shuttle, with three crew members aboard, and rendezvous between the ships."

"We find that acceptable. We will be one kilometer from one another in one hour. We look forward to meeting with you."

Vasques turned to Tammy. "Well, Commander Scott, as First Officer, the honor of leading the Away Team is yours. I'm sure you know how important this responsibility is."

Tammy swallowed nervously and nodded. "Yes, Captain, I do." So much for dull. If excitement was what she was really after, here it was.

"Ensign Fatemi and Seaman Cackowski will be accompanying you."

Fifteen minutes later, Tammy reported to the *Antigone's* shuttle, the *Polyneices*. Cackowski and Fatemi were already there and in full battle dress. They snapped quick salutes to her.

"As you were. Are we ready for departure?"

"Yes, Commander," Fatemi said, "all we need is final clearance."

"Good. Now, men, I realize that you're along for security reasons, but I want to stress to you, this is to be a peaceful meeting. You will not use your weapons unless we are attacked. I don't care how threatening the Trenar may seem,

you will take no defensive measures unless we're being fired on. Is that clear?"

Both men nodded.

"Excellent, this is probably the most important mission in the history of spacetravel. Our names are quite likely to be remembered right up there with Aldridge and Armstrong. We don't want to screw up."

Tammy new she sounded confident, but she was far from confident. She had dreamed of being in a situation like this all of her life, but now that it was actually happening she was scared shitless.

Finally, it was time to launch. As soon as the shuttle cleared the bay, Tammy caught sight of the Trenars' ship. It was about half the size of a human battleship and it didn't have any of the armament that was characteristic of a human vessel. She had a feeling that meeting the Trenar was going to be good for the human race. The Trenar shuttle approached quickly; it was about twice the size of the *Polyneices* and not designed nearly as well.

The *Polyneices'* scanners quickly spotted the alien's airlock. The shuttles' airlocks were not compatible. Tammy hadn't expected them to be, and was carrying an inflatable airlock for that reason. It could be modified to fit any size. Tammy vectored in, matching speed and trajectory. She allowed for drift and they started docking procedure. Ten minutes later the two ships were connected by the inflatable airlock.

"Captain," Tammy said into her helmet's microphone, "docking procedure complete. I am preparing to open the airlock."

"Understood, Commander. Your helmet's video camera is working fine. We can see everything you look at, so make sure you give the interior of the Trenar's shuttle a wide sweep. And good luck."

"Thank you, Captain." Tammy opened the airlock. When the iris valve dilated, she and her crew left the *Polyneices* and went toward the Trenar shuttle.

"Captain, according to my suit's sensors the Trenar's air has three percent more oxygen than Earth norm. Nitrogen levels are about the same. I'm picking up traces of argon and ammonia."

"Argon's not a problem," the captain's voice said, "but the ammonia could be. How steady is it? Unless it's being replenished it should break down."

"It's fluctuating between .001 percent and .003 percent."

"Then it's being introduced by the Trenar. That's interesting."

"What do you think it means?"

"I don't know, Commander Scott."

"We're entering the Trenar's cabin now." Tammy looked about the cabin slowly, making sure that everyone back on the *Antigone* got a good view. The shuttle reminded her of a botanical garden. There had to be more than a hundred different species of plants on board. The colors were amazing; Tammy counted at least seven colors she had never seen before. Only the ship's instruments were clear of plant life.

The three Trenar were standing just inside the airlock. The computer hadn't lied, they did look just like one-armed daisies as they hopped about on their single pogo stick-like leg. They were constantly in motion. How do they sleep? Tammy wondered.

"Welcome to our ship," a Trenar voice said over Tammy's suit radio. "We are so glad that you are here."

Tammy allowed herself to relax just a bit. "And we are glad to be here."



## Siblings

"We find it hard to communicate in this manner. Could you remove the headpiece of your suit that we might communicate more readily?"

"Captain?"

"We've analyzed all your readouts, there's nothing in that cabin that can harm you. You might be a bit light-headed from the difference in oxygen content, but I wouldn't worry about that. You can remove your helmet if you want to, it's your call."

"Sir, I would feel more comfortable if Fatemi stays helmeted and Cackowski and I simply raise our visors."

"That will be enough," a Trenar voice said.

Tammy and Cackowski lifted their visors. The air smelled musky and sweet, not at all unpleasant. This wasn't going to be so bad. Tammy had no more than finished the thought when a wave-like sensation struck her in the face. It was a force felt rather than seen. It pumped through her body like the notes of an amplified bass guitar. At first it wasn't uncomfortable; as it penetrated deeper, Tammy began to feel a profound sense of pain and violation. It went deeper and deeper, hurting more and more. Stop, she wanted to scream, but the words wouldn't come. Visions of her life started to flash before her. It was like watching a video, only she could feel the emotions as the pictures flashed past. She saw her time aboard the *Antigone* followed quickly by her Academy days. The process seemed to slow as her memories became older. Her high school prom, the first time she had slept with David, junior high school, and then her Uncle Charlie laughing as he zipped up his fly. "No," she finally managed to scream.

Suddenly she was released, and through shattered senses she heard the explosion of gunfire. Ensign Fatemi was pulling her out of the shuttle as he sprayed the Trenar with his assault rifle. Her uncle's laughter was still ringing in her ears as she lost consciousness.

Tammy's eyes fluttered open as the *Polyneices* docked with the *Antigone*. she tried to force her thoughts into something approaching coherency, as the airlock cycled, but was unable to. If only her uncle would leave her alone, everything would be fine. She could still hear his laughter, but he wasn't in the shuttle. How could he be, he'd been dead for five years. Dead for five years?

"Oh God," Tammy moaned as the crew from the *Antigone* poured into the shuttle.

"Are you okay, Commander?" a voice asked.

Tammy turned to the voice. Who was it? she wondered. An officer? A seaman? It didn't matter.

"Sir," another voice said, "Cackowski's dead, there isn't a mark on him."

"Let's get Commander Scott down to sickbay on the double."

Tammy felt herself being carried to sickbay. What was happening? Why wouldn't these people leave her alone? She just wanted to be left alone. Why didn't Uncle Charlie understand that? But Uncle Charlie was dead. Who were these people? Crew members? Yes, crew members. She was aboard the *E.F.S. Antigone*. What was a ten-year-old doing aboard the *E.F.S. Antigone*? She wasn't a ten-year-old. She was Commander Tammy Scott of the Earth Federation Navy.

"I am not a child," she whispered. "I am not helpless."

"Sir, Scott's starting to talk, but it doesn't make any sense."

That was Seaman Jacoby, he was talking to Ensign Fatemi. "I am not a child," she repeated. "I am a commander in the Earth Federation Navy. I am not a child." Her uncle's laughter

retreated and she shook her head. There were still some cobwebs, but she was almost herself again.

"Jacoby, I'm not going to sickbay. I'm needed on the bridge."

"Commander, we have to find out what happened to you. Until we're sure that you're all right, sickbay is where you belong," Fatemi said.

"Ensign, I have first-hand information that the captain needs. Let me go, I'm needed on the bridge."

"Commander, I was on the shuttle too. I can give the captain a complete briefing."

"No, Ensign, you can't. You had your visor down and your helmet dogged. You have no idea what Cackowski and I experienced. The captain needs to know what he is dealing with."

Tammy could see the indecision on Fatemi's face. "Commander, I'm genuinely worried about you. Cackowski is dead."

"I'm the First Officer and I'm needed on the bridge."

Fatemi sighed. "Then I'll escort you to the bridge, but if you show any signs of a relapse you're going straight to sickbay."

Tammy allowed herself to be escorted towards the bridge. None of this made any sense. What the hell had happened out there? Why did the Trenar open fire? Did the Trenar open fire? She couldn't remember. She had been in the middle of reliving her life, backwards.

Reliving her life backwards! Her vision of Uncle Charlie...Oh dear God. What was she running away from? Uncle Charlie, that was it, she was running away from Uncle Charlie. She must have blocked it from her memory, but part of her had always known. That was the part of her that was angry all the time. The Trenar had unlocked it and now she knew why she was angry and what she had been running from.

The Trenar! They were telepathic. It was the only answer. It was more than simple telepathy. They didn't just read minds, they exposed them. She had been unable to hide from herself. All her carefully laid barriers had come crashing down. In Tammy's case it hadn't been so bad, she had been close to dealing with her secret. She realized now that the memory of her uncle had been close to surfacing on its own. But poor Cackowski, apparently he hadn't been able to deal with his demons, he'd died rather than face the darker corners of his soul.

Tammy shuddered. What a horrible death—agony and shame. Suddenly, she realized that she wasn't past this experience. She hadn't dealt with the pain or the anger. Not yet. It was as if she had frostbite and had just come in from the cold. She was still too numb to feel the pain, but the pain would come. In the meantime she had to get her job done. She could come to terms with the pain and anger once this was over, once they figured out what had happened with the Trenar. What had happened with the Trenar?

When Tammy arrived on the bridge, she discovered Captain Vasques in a heated argument with his Trenar counterpart. "My people only defended themselves. Your people fired first!"

"Your people gave us no choice. They were going to fire on us. We fired first only because we were quicker. Even so, all three of my people are dead. They had not even the time to pass. You will surrender your ship to us immediately. You will not be allowed to take your knowledge of us home. That could only lead to disaster."

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"I cannot surrender the *Antigone*. If you try to seize this ship we will defend ourselves. I think you'll find that we are far better armed than you are, and far more adept at battle."

"I am finished speaking with you. You will not attempt to leave. Should you attempt to leave, we will destroy your ship. You have two hours to prepare for boarding."

"God damn it!" the captain swore as the channel went blank.

"Captain," Flemming said. "I've finished analyzing the video from Commander Scott's transmission. The Trenar fired on them with what appears to be a nail gun. It couldn't have penetrated Cackowski's armor. They didn't kill him."

"They fired a *nail gun* on us?"

"I believe it was the closest thing to a weapon that they had."

"Then what killed Cackowski?"

"Sir, I think I can explain that," Tammy said, stepping onto the bridge.

Both Vasques and Flemming turned to Tammy, noticing her for the first time. "I'm listening," Vasques said.

"Sir, I believe that the Trenar are telepaths."

"They didn't tell us they were telepaths."

"We didn't tell them we weren't."

"Point well taken, Commander."

"When they were *reading* my mind they exposed it to me. I watched helplessly while they thumbed through my experiences. It was like watching a movie except that I could feel the emotions. All my hopes and dreams revisited, but more importantly, all my pain and fears. I was overcome by my past. I don't think Cackowski was able to live with himself. Sir, without experiencing it, you can't begin to imagine how painful it was."

"What you're saying is that you don't think they meant to kill Cackowski."

"I don't think they meant to harm anyone. I don't understand why they fired on us. Perhaps Cackowski or I thought about firing on them, and they did what they thought they had to do. I don't know. I can't even pretend to understand telepaths."

"Neither can I, Commander. But two questions remain. What do we do now? And how do we clean up this mess?" There was silence for a moment and then Vasques went on. "We have two hours to avoid a war, let's get to it."

"Sir," Flemming said, "the computer has finished its analysis of the Trenar language."

"Summarize."

"I'm not sure that I can. They have tenses that have no meaningful expression in our language. They don't have a past tense. They do, however, have a word that when placed at the beginning of a sentence means "not happening now." Apparently, they don't differentiate much between past and future. They don't have any corresponding words for truth or honesty or lie or exaggerate."

"That makes sense. How could you lie if everyone could read your mind?" Vasques asked.

"One other thing: the words for thought and action are derivatives of the same word. To the Trenar, there's not much difference between thinking and acting."

"So," Tammy broke in, "when one of us thought about firing on them, they had no way of understanding that we might choose not to follow the thought with the action."

"That doesn't make any sense," Flemming said. "They have to be able to reason, otherwise they couldn't be sentient."

"I'm certain that they can reason, but not in the same manner that we do. Think about it, they're telepaths. Every time humans interact with one another they're trying to reason out

what the other person is thinking. The Trenar know. Can you imagine how being able to read each other's minds would impact our own relationships? We wouldn't be able to lie about anything. I can't even begin to imagine it." Would Uncle Charlie have molested me if he could have felt my pain? Would he have been able to hide what he was doing to me if anyone could have read his mind?

Vasques nodded. "Okay, suppose we buy your analysis, what then?"

"If we can show the Trenar how different thought and action are to us, we might be able to make them understand that we had no intention of firing on them.

"If we can't?"

"We have to go on the assumption that we can. I'll find a way to show them that we don't always act on our thoughts." Not all of us anyway.

Vasques looked around. "Anyone got a better idea?" No one answered. "Well, Commander, I'm sold. How do we convince them that we were never going to fire on them?"

"Sir, I think you should send me back over there. I'll find a way to demonstrate our reasoning ability. I'll think about running while I'm sitting down, or something like that."

"You were over there once and you damn near didn't come back. Need I remind you that Cackowski is dead."

"Captain, I lived through contact with the Trenar once. I should be able to live through it again. As you mentioned, Cackowski is dead. Do you want to take a chance on sending someone over there who doesn't know what to expect, who may not live through the first moment of contact?"

"Computer, open up a hailing frequency."

"Open."

"Trenar ship, this is Captain Vasques. Please respond."

"Vasques, are you ready to surrender your ship?" came the reply.

"I don't think that will be necessary. I believe we have an alternative answer."

"Continue."

"We believe that we are very different from you. If our understanding of you is correct, there is little difference between thought and action to you. That is not so with us. We have a greater ability to reason out our actions. Since we are not telepaths, this ability is very valuable to us."

"Not possible, the words you use mean essentially the same thing."

"Not in our language. We are not bound by our thoughts the way that you are. We can consider a course of action and decide not to follow it. Let us demonstrate this ability to you."

"How?"

"I propose to send over my First Mate, Commander Scott, for another rendezvous. She will demonstrate this ability."

"No, we will have no further contact with you. You now have one hour and six minutes to prepare for boarding."

Vasques shook his head slowly and took a deep breath. "I guess this means we're going to have to defend ourselves. Damn it, why won't they listen to reason?"

"Captain, I think I should go over there anyway. It's our best chance."

"Commander, you just heard them. They'll have no further contact with us."

"Captain, I could use a jet pack to go over there. They'll be able to see that I'm unarmed. Perhaps that will convince them to talk with me. Hell, I won't even wear combat armor, just a vac suit."



# Siblings

"I can't authorize that."

"Sir, if we don't try something we'll have an intragalactic war on our hands."

Vasques looked beaten. "Tammy, I don't want to put your life on the line."

"Juan, what choice do we have? We have to do something. We can't just sit here and wait to be attacked. I was leading the Away Team, I feel responsible for this mess; I'm willing to take the chance."

Vasques nodded. "Tammy, be careful."

"Count on it."

Tammy went back into the bay, stripped out of her combat armor, and got into a vac suit.

"Here's the jet pack," Seaman Jacoby said.

Tammy took the pack and strapped it on. "Thanks."

"Good luck, Commander," Jacoby said as he exited the bay.

As soon as the air cycled out of the bay and its doors had opened, Tammy propelled herself away from the *Antigone*. With the ship behind her, she felt vulnerable and alone. Her uncle's laugh came back to haunt her. "No," she said quietly to herself. "I am not ten, I am not powerless." The laughter receded. Vasques' voice cut through her com channel, giving her something to focus on.

"Trenar ship, this is Captain Vasques, please respond."

"Vasques, what have you done?"

"I am sending Commander Scott over to you. She is unarmed and unarmored."

"She must turn back."

"Captain Critt, she will not turn back. We wish to avoid a war with you. I am assuming that you also wish to avoid a war. The only way of doing this is to listen to Commander Scott."

"No."

"Do you realize how prepared for a war my people are? We hold twenty-seven planets. You cannot hope to match our resources."

"Captain, you have already killed three of my people. I will not lose more."

Suddenly there were three soundless explosions just off the bow of the Trenar's ship. Oh God, it's started, Tammy thought, I'm dead.

"Captain Critt, that is just a small taste of what my weapons are capable of. Take some time and analyze them. You cannot hope to stand up to them. If we wanted your destruction, we would already have accomplished that."

Tammy breathed easier. It had only been a demonstration. If the two ships began slugging it out, she'd have nowhere to hide.

The Trenar's ship's bay opened and a shuttle came out. "We will speak with Commander Scott. But know this: should the meeting be unsatisfactory we are prepared to ram your ship."

"Understood."

Tammy watched as the shuttle came closer. Please, God, let this work. The shuttle's airlock opened and she made her way into it. The lock closed behind her, air cycled in, and the door in front of her opened. One Trenar approached.

"Okay, here goes," she whispered to herself. I am running, she thought to herself over and over as she stood still and lifted her helmet's visor. Tammy could feel the contact of the Trenar.

It threatened to sweep her away. She couldn't let it overwhelm her. I am running, she thought as she stood still. I am running."

*I do not understand*, a voice inside her head said.

"Thought and action are not the same thing for my race." I am standing, she thought, as she sat down. I am standing.

*How can you do this?*

"I am not a telepath. My race has developed the ability to consider its actions before acting."

*This I can see, but I cannot understand it. May I delve deeper?*

Not again, she thought, remembering the pain of the first meeting. "Yes, you may," she said.

*You confuse me. Part of you says no, quite forcibly, I might add, and part of you says yes.*

"That's what we're trying to tell you. We can want to do one thing yet do something else entirely."

*I must explore more deeply.*

"You have my permission."

Suddenly, her memories began to run through her head. It was exactly the same as the first time, though a bit less traumatic. Tears streamed down her face as she relived the events of her life for the second time in one day.

*I cause you pain?*

"Yes."

*Then I will stop.*

"No, it is necessary that you understand us."

The memories resumed. Uncle Charlie played a large part in them. It hurt so much. How could he have done this to her? No wonder she'd hidden it away from her conscious mind. She could never have lived with it.

The pain receded and she felt a warmth pervade her senses. *I understand, you are alone. Even when you are surrounded by your own people, you are alone. You had no one to protect you from your uncle. You had to protect yourself. You lied—yes that is the word—you lied to yourself to protect yourself.*

"Yes."

*Sister, you will never be alone again. Your children will not have to face what you faced, we are here. You are not alone.*

Tammy started to cry in earnest. It was true, the Trenar could protect the children of mankind. No one would ever be able to hurt a human child without the Trenar knowing. Humanity's children would be safe.

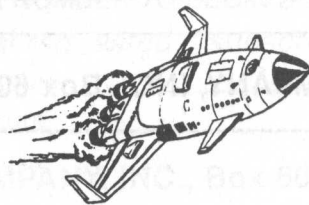
*Looking through your eyes, I can see that the universe is a much more dangerous place than we had ever imagined. We are not prepared to face these dangers but you are. You can protect us from the universe and we can protect you from yourselves.*

Tammy could see a world where human and Trenar walked hand-in-hand together, where children didn't live in fear.

*Yes, that world will be. We will be siblings.*

"Siblings," Tammy whispered. She had accomplished her mission. "Captain," she said over her com, "they understand. Everything is going to be all right." Now it was time to come to terms with her pain and anger. She could afford to let the two emotions run their course.

*You are not alone*, the voice inside her head said. *You are not alone.*



# TOMORROW

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and many more

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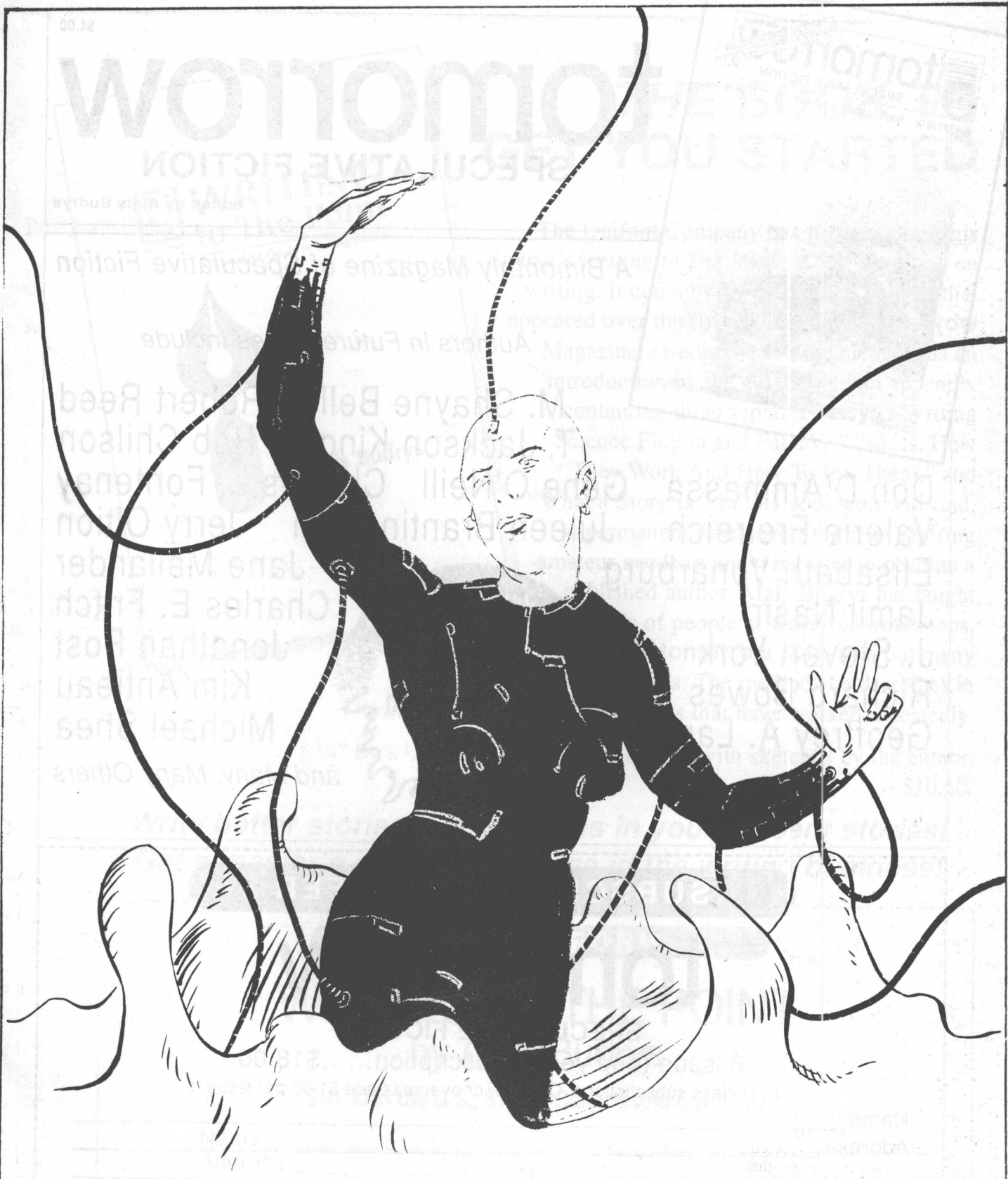
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J.B. Ortiz '95



*Hal Clement has been writing Science Fiction for more than forty years.  
His Novel, Mission of Gravity is considered to be one of the best, if not the best, Hard Science Fiction ever written.*

## SIMILE

by Hal Clement

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No one, not even Major Xalco herself, thought of her as being in her own quarantine section within meters of everyone else, though they all knew the fact. For all practical matters except vulnerability she was driving *Theia*, seven hundred kilometers below and a third of the way around Titan's globe from the station's present orbital position, trying to hold the jet at standard observation true airspeed of one hundred meters per second.

Even after an Earthly year the illusion of actually being in the aircraft tended to take over at unfortunate moments. The fact that occasionally the pilot was really on board probably made matters worse. The optimists who had believed at first that random reality reminders from Status would eventually cease to be needed had finally given up the hope.

Ginger Xalco had never been an optimist. She was in fact known as one of the first to comment whenever things seemed to be getting worse, and her voice now was practically a snarl.

"I don't know what would constitute a P-K catastrophe on this—silly moon." She got the words out in spasms, when some of her attention could wander briefly from piloting. *Theia* at the moment was not so much flying as being blown around, four kilometers above the smog-stained ice of the surface.

Turbulence was not new; it had been met by all the pilots in reasonable places, mostly within and under the thunderheads which commonly grew in the week-long daytime over Titan's numerous lakes. Horizontal winds of more than a meter or two a second, however, originally rare, were now routine. So was the seismic—actually now volcanic—activity which had ended the first attempt to set up a surface base and was now racking four other areas on Titan's surface.

One of these was centered less than a dozen kilometers from the first factory. This might, of course, be coincidence; no one but a pessimist could feel sure either way.

Gene Belview, whose non-commissioned rank made him officially a mere observer rather than a theorist, seldom let that fact keep him quiet. He answered Ginger's rhetorical remark with a more literal question. "Why should we assume this is something catastrophic? We've been here only a fraction of a Saturn year, and we're near the equinox. That's a stormy period on Earth."

Ginger's attention was not too occupied to permit a retort.

"You mean some *parts*—of Earth, where—the sun—makes a lot of—difference. And since when—were volcanoes seasonal—whoops!"

"Trouble?" Major Collos, informally Maria, legally group commander, cut in instantly.

"Downdraft. I overcorrected—and had a pipe—stall. No danger—plenty of altitude—there. Fired up again. Status, that'll put a—kink in my line. Allow for it."

"Checked," came the robot's deliberately unmistakable voice. "It may be relevant that the increasing turbulence of your last few dozen kilometers shows a rough correlation with increasing methane content of the air."

"Probably is," Belview's voice sounded thoughtful. "Most of the thermals I've ever run into are over lakes, where the evaporation would drop the air density—"

"And drop the—temperature too. I thought we'd—agreed not to call them 'thermals.' Or are—you just reminding us gently—that you were a pilot long—before this affair started and can't—bury old professional knowledge?"

Maria, nearly certain that this charge was justified, changed the subject. "Are there lakes below you, Ginger? I don't see anything special on my mapping stuff, and haven't been following your Aitoff screen. What part of the spectrum are you using?"

"Long enough waves to see the ground—I'm below most of the smog anyway. There are four—lakes I can see from here, but none right—under me and none specially big. There's no obvious reason—for extra methane—wow!"

"Another stall?"

"Just a bump. If I'd really been riding this machine—I'd—show 'em the accelerometer records, Status."

Exclamations like her own sounded in other human voices. All but one of the group were experienced enough, and identified well enough with their craft while flying, to "feel" the jerks shown by the instruments. The gaps in the pilot's sentences were understandable to all.

"That's close to red line," Belview worried aloud. "No one expected real turbulence here."

"If you'd hit that at four or five times standard speed we'd be looking back at your wings," Peter Martucci remarked uneasily. "Shouldn't you slow down?"

"And risk having—all the lift go out—from under me?"

"You have plenty of altitude."

"And that's the—way I want it. How much longer—should I hold this—run, Status? I don't—suppose the original timing means—anything any more. Is—there any trouble compensating for this—bucking? I'll slow down if—the readings really need it."

"There is no problem with the readings. Aircraft safety is still paramount."

Silence, except for an occasional annoyed mutter from the acting pilot, ensued for some minutes. Maria had been tempted briefly to offer a suggestion—which would really have been a command—that Belview take over the piloting; but the jet seemed in no real danger, and morale was important even, or perhaps especially, among a dying crew. She couldn't compromise by taking the controls herself, for two reasons. She was no better a flyer than Xalco at the best of times and everyone knew it, and this was not the best of times.

The Waldo suits which operated the aircraft from thousands of kilometers were complex devices requiring input from many parts of the wearer's body including toes, chins, and noses. Some potential group members on Earth long before had been rejected for poor facial control. The possibility that someone might need to fly with a missing right hand had not been foreseen, and in the fortnight since its loss no one in the Station had been able to think of a way to compensate for it.

# Absolute Magnitude

She looked across her cubicle—actually a rather luxurious and extremely well equipped living space and laboratory—at the two tanks where most of her specimen from Arthur's Pool reposed. It had seemed harmless enough to scoop up, in a glove designed to keep her hand from turning to glass at a surrounding temperature of ninety Kelvins and in a reasonably conductive atmosphere, a sample of the viscous matter in which Goodell had died. Xalco's worrisome sticking in a similar pool had proven merely frightening, with no resulting damage.

Maria's inability to clear her glove of the stuff during free fall up to the station had been merely a nuisance; Belvew had done the piloting. Embarrassing experience with their late commander had taught them to install bypass systems in the two remaining jets so they could be flown remotely even when someone was actually aboard.

Back in her quarters, however, the stubbornness of the sample had graduated from an annoyance to a problem; and when she realized that part of her glove had been dissolved and the stuff was starting to work on her hand, she had to declare an emergency situation. Of course all the individual quarters were equipped with remote-control surgical equipment, and a laser amputation had been a minor job—well within even Status' competence. Even while it was going on, Maria had been almost more interested in another matter; she had joined with gusto, and seemingly full attention, the discussion over why the sample had failed to be inactivated by a temperature rise of over two hundred Kelvins. An egg starting at a normal three hundred ten, would have been much more than hard boiled at, say, the melting point of aluminum—a comparable *ratio* in temperature increase. Seichi Yakama was already talking as though the stuff were alive, but no one else went that far. Alien suit-penetrating and flesh-eating monsters seemed at least as unlikely to sober and rather conservative scientists as the alien kidnapers of UFO mythology. Besides, no one could really believe that a major goal of their mission—establishing that either life or prebiotic chemistry existed on Titan—had been achieved in less than a year and with so many of the original group still alive.

Things had never been that simple even in saber-tooth tiger days.

But Maria Collos could no longer fly, and the stuff in the tanks—one containing mostly the sheared-off forearm and gauntlet of her suit plus adhesions, the other the more personal material which had been extracted from it—was probably relevant to the problem even if not an answer. It was certainly interesting, not only to the victim. An obvious first experiment was under way; a scrap from the second tank's contents was taped to the hand of one of the mausoleum's residents, under remote observation to see what the stuff would do to human tissue at Titanian temperatures.

Maria had of course made the proper gesture, offering to resign the command she had so recently inherited from Goodell, but no one else wanted the job. The responsibility was often a distraction from more interesting work, and the crew unanimously, promptly, and firmly agreed that a theorist didn't need two hands. Maria wished fleetingly that she had had as good a chance to argue with her late predecessor, but was accepting the situation. At least, the bunch of argumentative daydreamers had now committed *themselves* to following her—*recommendations*.

And the daydreams, more formally called hypotheses, were still being produced, luckily. She wouldn't have to stimulate any imaginations. Martucci's voice was relieving her of that worry right now.

"Y'know, Ginger, that point of Gene's about equinox may have something. Just think of it as eclipse season. I know the sun's a long way off, but a quick change of heat input over a whole hemisphere as Titan ducks into Saturn's shadow might very well do *something*."

Not even Belvew really spoke for some seconds, though many voices muttered at spot calculators.

"It's worth checking," Maria agreed slowly. "Intuitively, I'd say the input was very small, as you suggest, and if there is any effect it'd be lost in chaos. It takes Titan about half an hour to move its own diameter along its orbit, and except at the middle of the eclipse season it would take even longer to get completely covered or uncovered by Saturn's shadow. Longest possible eclipse at mid-season, which we haven't reached yet, is only about ten and a half hours. Could be a respectable amount of heat at that—Pete, you and Seichi think of some ways to word useful questions to Status on that one, bearing the chaotic possibility in mind." She knew that everyone else would try to beat the assigned pair to the idea draw, but that would do no harm.

"The air's quieting down, I think," Xalco finally reported. "It's been over an—hour. That's quite a storm cell for Titan, if it was a storm cell."

"It was not." Status' tone showed no change, but its firmness was taken for granted by everyone. "There was nothing cyclonic about its wind patterns, and there seems to have been more descending than ascending current area, though that cannot be certain; you traced only a single, rather irregular line across the region. The cause is not clear. I am making the obvious correlations which have been suggested as routine, but any others you want will have to be added by living imaginations. Nothing significant has appeared so far, and with the volume of data now involved it will take at least ten more minutes to make the remaining routine comparisons."

"Please include eclipse data in them," Maria replied.

"Done. I had already interpreted Corporal Martucci's words as a suggestion. Only the fact that eclipse season and large-area turbulence started within a Titan orbit of each other, and in that order, is obvious. Both starting times are too recent for causal relationship either way to be reliably inferred."

"What next?" asked Ginger. "There are a few more seismic lines to lay out, aren't there? I mean the originally planned ones, not the stuff we've had to improvise around the new volcanoes."

"You'll need to restock on cans first," Belvew spoke before the robot managed to do so. "The extra patterns cut into the reserves pretty deeply."

"I know. There should be plenty at the factory—Status, you didn't stop manufacture when the stocks we originally planned were finished, did you?"

"Yes, but I reset the unit for more after the change in operations was implemented. There will be a full load waiting when you reach the factory."

"Then I'd better start back there now. Heading, Maria or somebody?"

"Do you still have labs aboard?" cut in Yakama.

"Sure. Why?"

"I'd like very much to make some comparisons between Arthur's Pool, the one by the factory, and the one at Lake Carver where Gene set down and started to sink a few weeks ago. We dropped a lab there at the time, but it got blown into the lake when he found he was sinking and took off in such a hurry. There are a couple of units still working in Settlement Crater and lots at the factory site where the—where you're



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going anyway, but I'd give a lot to be able to cross-check all three places where any of our stuff has touched Titan's surface physically. D'you suppose you could drop another lab there by Lake Carver before you settle down at the factory, Ginger?"

"I don't see why not. Wait a minute, though—we know we'd better not drop it in the lake, since we couldn't hear the first one after it went in, and we know the ground there is pretty hard. Wouldn't I have to land to get a lab down intact?"

"Gene landed, and you dropped labs from flight during Maria's hike, and they stood it all right—"

"They landed in snow!"

"About four centimeters deep, as I recall."

"That can make a big difference, especially under Titan gravity. But aren't there any snow patches reasonably close to Carver? The labs can travel, after all."

"I take it you'd rather not make an extra landing."

"Is that criticism?"

"I'll do it if you like," Belvew cut in. Maria played this one safely, too.

"Ginger can do it if it needs to be done. I agree with the importance of having labs there, if only to get an analysis of that lake; we never found out why we couldn't read from the unit blown into it—it could have been depth or composition of the lake or blast damage to the lab itself. Go ahead down, Ginger—but do check the area for snow patches first."

"There were none nearby at that time," Status reminded them. "All the ice we have seen has been massive, except the dust recently being produced from the volcanic vents."

"I'll look anyway. Heading, please?" Ginger relaxed; at least this should be a more comfortable ride. It was.

There was indeed no snow, and relatively little surface ice; Lake Carver was on Titan's darker trailing hemisphere. Ginger was not, as she had tacitly admitted, eager to land, but had no intention of handing Belvew the responsibility. She made all reasonable delays, looking unsuccessfully for nearby snow patches, doing a careful wind run and even topping off her mass tanks at a nearby thunderhead—she had used rocket mode once or twice in the turbulence—but it seemed clear that dropping a lab even at minimum safe flying speed and altitude would probably only wreck the equipment. Even if the device remained in shape to heal itself, that would certainly take much longer than a landing.

The pilot rather hoped that Maria would decide to risk a drop anyway, but the commander felt that the balance favored making the landing. Ginger spotted Belvew's Pool with the lake in the background, lined up *Theia* toward it, and began her approach.

She had detected no wind and observed no turbulence, so there was plenty of time to adjust letdown rate. She should touch just at the bottom of the near side of the gentle slope—she wondered suddenly why neither of the other named "pools" had shown such a bulge, but put the question firmly aside; this was no time for theoretical work. She was just above pipe stall speed—closer than Belvew had gone before shifting to rocket, she recalled; but he'd been enjoying a small head wind. Not that that made any difference with *airspeed*. Fifty meters above ground, six hundred from touchdown—

She closed the intakes and began to draw from *Theia's* mass tanks. Her bare scalp—her nickname dated from many years before she had qualified for Titan, and even before her infection—she could feel trickling with perspiration, and she was fleetingly glad of her isolation. Belvew, his Aitoff and other instruments copying hers, hoped his relief at the mode shift was inaudible. Someone else gave a grunt which might have been

approval; the change to rockets had barely shown on the accelerometers.

Thirty meters up and three hundred to go—descent had slowed a little, but now she had to watch for imminent wing stall. She was overshooting a little. Nose and power both down just a trifle, but watch that *airspeed*. The bulge of the pool now hid the lake. She should still land on this side, but might not stop sliding before the top. Still overshooting—was a tail wind picking up? If an updraft were starting to grow over the lake, that would be its effect. The thunderhead where she had juiced up was well behind her. No way to check without aborting the landing and going up to make another wind run, and she wasn't going through all that again.

She couldn't touch now less than halfway up the near slope. The air *must* be moving. No matter, she could still—but yes, it *did* matter; beyond the top the slope was downward, and that was when even Belvew—cancel that "even," blast you, Xalco—had had trouble. Not much, but some.

Her keels touched before *Theia* reached the top, but not very much before. There was a swelling black cloud at either side of her Aitoff, just as Gene had had, and she cut thrust the instant her meters showed the ground drag.

Not soon enough. The jet ballooned, probably only a few millimeters, but failed to touch again until it was halfway down the slope. It wasn't much of a slope and the aircraft didn't have much wing area, but Titan doesn't have much gravity. Then she was firmly down and slowing rapidly.

Not as rapidly as the now very visible lake was approaching, however. There *was* a thunderhead growing over it, she thought in surprisingly detached fashion as the jet crossed the shoreline.

"Well, we had to find out sometime." At least the remark hadn't come from Belvew, and there was no way for anyone to tell how frantically the commander had striven to beat the sergeant to it. "What's the lake density, Status? You have the *Theia's* mass, shape, and volume parameters and can read how deeply she's floating."

"A little higher than expected for a ninety-ten methane-ethane mixture at that temperature, but not outside reasonable variations in such a mixture. If the Major will eject a laboratory we can—"

"Not 'til you're ashore!" Belvew did get that exclamation in first. "We know the lab won't float, and we can't hear its output from under the surface."

"Strictly speaking, we don't know it won't float," the commander pointed out. "The density of lab and lake certainly aren't very different. We never really looked for the other on the surface, and it might have been damaged by the jetwash that blew it away. However, I agree it would be best to get ashore first. I'd suggest very, very gentle thrust in rocket mode, Ginger."

"And expect it to be pretty bumpy even then," pointed out Belvew. "The liquid will boil around the arcs and get blasted out the pipes. That'll stop as the arc clears itself and resume when juice sloshes in again. It'll be like pouring from a narrow-necked bottle, I'll bet."

"I'll bet." That was encouraging. So not even Belvew was completely certain what would happen with the pipes submerged and flooded. The point had been overlooked during design of the aircraft. Xalco wasn't sure whether Gene's uncertainty was a relief or an added worry.

The arc controls involved her hands rather than knees or toes, fortunately, but she activated them with even more caution than she had used in the landing.

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The jerking wasn't bad—*Theia* was massive and the lake offered plenty of resistance to motion—but the sergeant had been essentially right. She bumped away from the shore, experimented with cambering the vertical stabilizer in its ordinary steering use and found it ineffective. The obvious alternative was to cut power to one engine until *Theia's* nose pointed back toward shore and hill. Then, even more slowly and carefully, she began to retrace her path.

"Hadn't you better tank up?" asked Martucci. "You used juice to land, and will use more getting ashore." Ginger didn't answer directly, but followed the sensible suggestion.

"Status, check how much mass I take aboard, how far it sinks me, and cross-check the lake's density," she said. It took her a moment to remember the appropriate controls; all previous tank-ups had been made in flight from airscoops, and opening an inappropriate valve now seemed unlikely to be habit-forming. Again she fought off the temptation to let Belvew take over.

The mass change was small and the rise in fluid line perceptible only to instruments. Status reported a small change in the computed density and claimed it exceeded reasonable measurement error, but the collective human judgement dismissed the difference as unimportant. It was certainly minute. *Theia* resumed the bumpy drive shoreward.

She was close in when the keels touched; the slope of the lake bottom appeared steeper than that of Belvew's Pool, now renamed by some of the party unofficially as Belvew's Hill. Without consulting anyone, Xalco gently eased more energy into the arcs.

*Theia* bumped further inshore as though being tapped from behind by a giant putter on a wet green, and her bow began slowly to rise. Then forward motion and hammering stopped for fully a second. Before the pilot could decide what to do, even before Belvew could offer advice, there was a loud "thud!" and a stronger forward jerk. Both repeated themselves in a fraction of a second, but less violently. Motion and sound ceased again; then Belvew gave a cry of warning.

It was unneeded; the pilot had also seen the panel light and reacted properly, feeding mass from her tanks to both arcs. Another blast from the pipes, much more violent in terms of acceleration but much less noisy than the others, sent the jet completely ashore.

"When the arc section got above the liquid—" Belvew began.

"I can see what happened. The pipes are drained now, I expect. I'm dropping a lab right here, Seichi; you can try getting a lake sample without having it lost in the drink. I'll hold off on thrust until you can walk it to one side far enough. Then I'll push a little closer to the pool, or hill, or tarpot or whatever we're going to call it and drop another—or do you want even more, Seichi?"

"Two should be enough, but if you can spare more it would be nice to have a couple in reserve."

"All right. Just a moment." The rockets thundered briefly. "Here go two labs. Get them off to the sides, or to one side, or whatever is handiest as fast as you can, please."

"I have control of them both. They seem to be responding normally to commands. I have them moving aft—now they're clear of the keels. Another couple of minutes." Even Belvew was silent during the wait. "All right. They're both about fifty meters to your left, and should be clear of your wash. You're getting closer to the stuff?"

"Yes." Again everyone heard rocket thunder, and watched instruments and screens as *Theia* slid closer to the rise. "All

right, here go two more for you to use on the tar or whatever it is. Move them aft and a little to the right—my left, that is. I'm going to use the right engine to turn *Theia* parallel to the foot of the slope before I try takeoff; that should use less mass than trying to accelerate up the slope, especially if it's going to pull the sticky trick. The first two are enough closer to the lake so I won't be risking them. Nothing else needed on the ground?"

No one answered, and the aircraft swivelled clumsily to its left until it was parallel to the shore a dozen meters away. Then it accelerated northward, a dark cloud again appearing behind as hot gas swept the lowest fringe of the hill/pool. Ginger had not recited the check list aloud, but she had followed it. The wings were cambered for maximum lift, and *Theia* was airborne in less than three hundred meters. The moment it was safe—perhaps a fraction of a second before Belvew would have done it—the pilot opened the intakes and shifted to ramjet mode, smoothly enough so that the sergeant nodded approvingly if pointlessly in the solitude of his quarters far above.

Without a word Ginger headed for the now well developed cumulus cloud above the lake, climbed to four kilometers, and dove into it to refill her tanks. She didn't really expect any remarks from Belvew, but there seemed no point in asking for them.

She got one anyway.

"Look at your chamber temperatures and exhaust speeds. There's something there shouldn't be in both pipes, clogging them maybe two percent. It's lucky you didn't open the intakes any sooner; that would have been pretty low for a pipe stall."

"Right." Ginger was thoughtful. She wasted no worry on what hadn't occurred; pessimism is not the same as a brooding tendency. The fact that she wasn't actually riding the jet had nothing to do with her attitude; losing the craft would have been practically as bad as losing herself with it. There was a piloting problem to be faced, and she gave it all the attention she could spare from steering the jet through the nearby cloud and operating the collection equipment. She even asked for help.

"Status, watch those engine readings and let us know if you detect any change in any direction. You needn't recite the readings themselves, but let me know whether the obstruction they indicate is increasing or decreasing."

"It is decreasing," was the instant response.

"Something sticky got into the pipes while they were submerged, and is burning out now," Belvew concluded promptly.

"Let's hope it's just the obstruction that burns," Ginger acknowledged his admittedly very probable analysis obliquely.

"A hypothesis is just a simile. Don't risk predictions, especially worrisome ones, until it at least graduates to a theory and can be treated as an analogy," the commander put in, unable to resist. Belvew did tend to become positive rather easily. "Seichi," she went on before the sergeant could react, "have you any analysis of the lake yet? Is there anything which might explain this?"

"The lake is mostly methane, ethane, and small amounts of higher but still simple hydrocarbons," the chemist replied promptly. "The key word, though, does seem to be *mostly*. Maybe half a percent of the stuff is very, very complicated, and it'll be a long time before I can get even a rough composition. It's certainly a mixture, not one or two nice, clean compounds with readable structures and writable formulas."

"Tars, in other words?" the commander queried.



"I couldn't say yet. Using the word more loosely than we have so far, not just for the stuff in the smog, I suppose so. That's about as meaningful, though, as the word 'protoplasm' was when there were still a few orders of magnitude between the smallest thing you could see with a microscope and the biggest you could identify in a test tube."

"Are you trying to say 'life' again?"

"It won't—wouldn't—surprise me."

"And jellyfish swam into the pipes?"

Seichi ignored Belvew's sarcasm, if he even noticed it. "That would indeed surprise me," was his answer.

"How about a heading for the factory?" Ginger changed the subject.

"Sorry. Wasn't thinking," replied Maria. "Status?"

"Wait, please." It was the chemist again. "One of the labs dropped beside the slope has stopped reporting. Major, could you look it over before leaving?"

"Sure. Where was it?"

"I moved it to the edge of the hill, if that's what we're calling it now, as soon as you were away. It should be at the edge of the tar—pardon the word; we'll have to find some more specific labels—within half a dozen meters of the other, which is sampling the ground between lake and whatever. It should not be more than half a meter into the whatever."

"All right. I'll concentrate on flying. The rest of you do anything you can think of with your screens, and look for that egg. Any better ideas?"

None were offered, and the jet glided back toward its recent landing site, easily enough identified from above. The smoke had drifted out over the lake, but the "hill" itself still contrasted in color with the "ground." Ginger flew over the area at three hundred meters altitude and standard observing airspeed.

The two labs by the lake side could be seen easily enough, and, after a few seconds, Martucci spotted what was presumably the still active member of the second set. He indicated it on his own screen, and Status emphasized the image for the others. No one, however, could see the fourth lab, and Ginger banked out over the lake to make another pass. Scalp once more sweating, she dropped to a hundred meters in height and two per second above pipe stall speed and straightened out, tensely ready to close airscoops and turn on reaction mass at minimum notice.

Several screens showed the errant lab almost at the same moment. Maria and even Belvew waited for Seichi to report; he should, after all, have the most to say. Peter, however, was less restrained.

"It's sunk in! It's nearly half—"

"Look closer," Maria interrupted softly.

"What?"

"It hasn't sunk. There's a little hill around it."

"I told you!" exclaimed the chemist.

Belvew cut in, to no one's surprise. "The lab is pseudolife. It was grown from molecular patterns. Its shell is organic—close enough to chitin. All sorts of things would react with it—"

"And climb up around it like ants around a jar of—"

"Or like the other one around my boots?" Xalco cut in.

"No! Dissolve it—absorb it—and swell up as it soaked into them! I'll bet you'll find molecules from that lab spreading out in that stuff like—"

Maria refrained from interfering. Science might have become more military under need, and it had always needed discipline as much as combat did, but a scientific debate was best not stopped unless it grew too acrimonious to be useful.

"How do I find out? The lab's not working, or at least not reporting." Belvew paused for a moment's thought as Seichi made this point.

"You have three more labs there. They all have samplers with fairly inert tips and throats. Get one of them over near where the first is disappearing, without letting anything but the sampler head touch the stuff, of course, and pick up bits at various distances from the one you've—we've—lost. How far from the lab body can you reach?"

"Half a meter, maybe. No, less; thirty centimeters or so." The chemist's indignation at the criticism of his pet idea had visibly subsided. "But I can't judge distances very well except where I have items in sight to provide scale. The lab has only one eye, and that doesn't have much resolving power; it's mainly for travel guidance."

"It's on a stalk," Martucci pointed out. "Wave it around and have Status show you a 3-d image. You can keep the lab out of danger easily enough and if you do slip there are always more. It's not as though they were jets. Ginger's going back to the factory now for cans, and can get more labs while she's at it. If Captain Yakama has really bad luck."

"That should work," Maria pronounced firmly. "Ginger, your heading is two-zero-two. Seichi, get to it—no, first make sure the labs doing the factory site are all working."

"They are," was the report after a brief pause.

"All right, you get back to the lake work. Status, keep track of *all* the labs and tell the world if any of them, anywhere, either stop reporting or send readings inconsistent with their earlier ones. Use Sigma One consistency criteria. Cheru, cover my mapping program along with Status; I want to keep on top of the pool situation. Gene—"

"It's almost time for me to relieve Ginger with *Theia*," the sergeant pointed out.

"Take *Crius* instead and make a really tight air current grid through the turbulence region she just left. Modify it to fit any new information Status may supply; use your own judgement, subject to aircraft limitations. Keep repeating it until either you get too tired to fly, or Titan has been out of Saturn's shadow for two hours. Ginger will last long enough at what she's doing. Get a heading from Status, and start earning your pay."

No one laughed at the p-word; there was serious work to be done. Even those not receiving specific orders had routine to continue.

By the time *Theia* reached the factory site, Yakama had found with natural irritation that Belvew's hypothesis about diffusion was probably right. The lost lab had disappeared completely into the "tar," the bulge which had formed around it was now slowly flattening out to match the surrounding slope, and the confusion of molecules in the vinyl gel definitely included many which had to be fragments of the lab's pseudolife outer shell and inner machinery. At least, their makeup was consistent with ordinary industrial pseudolife, and nothing very like them had been found anywhere else on Titan. Seichi was able to report this without revealing too much annoyance, and Belvew refrained from any triumphant remarks. He was far too busy, in any case; flying a planned grid pattern through and around the turbulence zone was straining even his skill. It was comforting to remember that he had made no tactless remarks about Ginger's handling of the same task.

"The ice cliff's in sight," reported Xalco. "I'll make a wind check before—I set her down." No one argued or even commented; not even Maria felt this time that the pilot had any qualms about the landing. Yakama made a request, but it was pure routine.

# Absolute Magnitude

"Status, check the camera records as she goes over and give me any changes in albedo or topography around and on *Oceanus*."

"They seem to be minor," came the prompt answer. "Less can be seen of the craft. I will need a moment for stereo interpretation to tell whether it has sunk or the pool risen."

"It wasn't even—in the pool last time I—knew!" Belvew's attention was snatched even from his present flying task. "Why didn't—you tell us? Did the pool—or the ship move?"

"Your statement disagrees with my records. The pool had spread to include the aircraft at the time of Sergeant Inger's death. Have I been shut down without proper procedure for any significant time?"

"No, Status," Marie replied at once. "Sergeant Belvew's attention was distracted at the time, and his memory of the pool is unreliable. Do not attempt record-conflict resolution."

"You were told to—report changes—"

"The command was much more specific than that, Gene," Maria pointed out. "You know it would have to be, or Status would have been swamping us with unusable and probably meaningless data. Ginger has passed the site now, Status; do you have a stereo comparison?"

"Yes. The pool has risen. Its slope is even greater than the one by Lake Carver, within twenty meters or so of the jet."

"But the hulls of the aircraft are of very different composition than the lab shells," Seichi pointed out. "We could hardly have the same solution process occurring here."

"What do your labs say?" returned the commander. "All the ones near the factory are still working, aren't they? Or have we lost some here too?"

"All are reporting, including those on the pool itself."

"Just don't let *Theia* get—into it, Ginger," Belvew seemed back to normal after a few minutes of silent thought in a background of turbulent flight; he couldn't hold back the superfluous advice.

"I'm landing to the north. There's a five-meter wind from that direction," was the response. The direction was not surprising, but the speed was, and for just a moment Maria wondered whether she should have Belvew handle the landing. She decided against it, but was not sorry to realize that practically everyone's screen was copying *Theia's* and it was unlikely that the pilot would be allowed to overlook anything serious.

The wind, a gale for Titan, was producing ground turbulence in the heavy atmosphere. The accelerometers showed it as Ginger rode down the approach, and she felt rather grateful for the practice she had had so recently. Wings stayed almost perfectly level once she had set up her heading; pitch angle remained unchanged; she controlled her descent rate with thrust alone. She intended to touch down heel first, but the keel toes would be only a centimeter higher at that moment if she planned it right and the ground were really level. The nose drop would be barely perceptible, but lift would cease and keel drag start almost instantly. She was west of the factory and the remains of *Oceanus*, and had paid no particular attention to the latter as she passed over it on the wind check.

Neither, for some reason, had anyone else, and Status had no relevant orders.

She had picked the line to keep away from the ice cliff and the larger scattered fragments extending from its foot. The smaller ones should be harmless.

Rather to her own surprise, everything went exactly as planned; she was somewhat disappointed to realize that Belvew was far too busy to have been watching. *Theia* slid to a halt

half a kilometer west of the factory, with a record low of reaction mass used during the rocket-driven part of the approach.

"Nice job, Major," Maria remarked, referring to the tank readings.

"Just as well. I'll need to use a lot of juice taxiing. Is the factory ready to deliver, Status?"

"It indicates so. You want the full complement of seismometers, of course. There are fifty unused labs also ready, and if you think it desirable you have room in the jet for a dozen more from those now active in the factory area. These will of course be harder to load."

"Think we'll need 'em, Seichi?" asked the pilot.

"I can hope not," was the dry answer. "I've picked up nearly fifty sample from this hill of Gene's without losing the first one yet."

"By first, you don't mean the one which—" Martucci stopped in confusion; Yakama's sentence had not really been that ambiguous.

"The lost one, assuming material diffused about equally in all directions, seems to be accounted for," the chemist went on without seeming bothered by the interruption. "It appears to have dissolved completely, except perhaps for metal sampling heads. I find no trace of those. Unfortunately, there's a lot of background material—polypeptides, carbohydrate polymers, and probably stuff which is similar to but not identical with either—so a lot of time will be needed to specify the mixture details."

"Maybe we should call it protoplasm," suggested Martucci, "just for the historical implication," he added hastily. "Something sitting between the high side of low perception and the low side of high."

Maria ruled against this without trying to find out how seriously the suggestion had been meant. The word would be far too likely to slant what should *not* be wishful thinking. "But it wasn't a bad idea, actually, Peter," she finished tactfully. "We do seem to be in a sort of in-between situation calling for that sort of metaphor."

"Whatever it is, let's keep the jet out of it." This was Belvew rather than Maria, and the pilot allowed her irritation to show once more.

"Don't worry. I'm down and stopped, and there's plenty of juice for taxiing. Tend to your own driving, Sergeant." Belvew detected the feeling both in her tone and her use of title rather than name, and said no more; but his attention did not go back entirely to his own jet. He set his Aitoff to copy Ginger's, and flew with complete confidence by the other instruments.

This was very unwise, but he didn't stop to think how similar riding two sets of instruments at once might be to trying to fly simultaneously by instrument and direct vision. Further, Status had no instructions about supplying occasional reality flashes to someone driving, in effect, two aircraft at once. It also lacked human common sense—the fact that one of the jets was on the ground did not affect its judgement—and made no attempt to supply such breaks. Belvew fell into the trap which had caught many instrument pilots on weather breakout before him. As Xalco started to swivel her charge toward the factory his reflexes for a moment responded to *Theia's* attitude rather than *Crius'*.

*Theia* was supposed to be nearly motionless. *Crius* was at standard observing airspeed, which was already rather too close to pipe-stall in the present turbulence. Belvew's jet nosed up just a trifle as he entered an updraft, his reflexes tried to handle



## Simile

conflicting sets of input, his airspeed dropped further, and both his fires went out.

Mentally, he recovered instantly. Reflexively, he overcontrolled. This did not endanger the aircraft, which had plenty of altitude, or even bother the Waldo suit; this had built-in safety cut-out cut-outs to cover shivering, startle reflexes, and even convulsions. Its wearers were, after all, terminally ill people. The overcontrol was strictly in Belvew's own body, and everyone in the group, including Xalco, heard his cry of pain.

"What's wrong, Gene?" the commander cried. The answer came from Status, not the sergeant.

"His right ulna is broken some four centimeters above the elbow. He seems to have forgotten momentarily the background risk of his bone condition."

"Gene! Can you fly?"

"Fraid not."

"Cheru, take *Crius!*" snapped the commander. "Don't worry about the pattern if you can't follow it without practice—the aircraft itself is more important. Status, provide Akagewa with full-detail guidance for the current observing grid until he tells you it's not needed. Gene, are you out of your suit yet?"

"Yes."

"Good. Get onto your cot and let Status do what's needed."

"Does he know? I haven't actually broken anything until now. Just expected it."

"We'll soon find out. Ginger, what's your status?"

"Still taxiing, a couple of hundred meters south of the pool, nearly three hundred from the factory. I assume I carry on." There was no question in her tone at first; then a thought struck her. "Or do you want Cheru to take over here and me to handle *Crius*? I've been in the turbulence already."

The commander hesitated only a moment. "No," she decided. "He has plenty of safety altitude if he needs it, and you've been down at the factory before, which he hasn't. Pick up the cans, and at least a dozen labs. You said there were more than that, Status?"

"Yes. Everything previously suggested is ready to load when the jet reaches position. I assume the standing order to look for changes in *Oceanus* should be followed with *Theia*'s cameras as she taxis."

"Right. What are you doing about Gene's arm?"

"The bone ends are set and the elbow immobilized. There are few data on what to expect in the knitting process with his ailment, but it will certainly be many days before he can use a suit either for flying or environmental protection. I will maintain even closer watch than before on his blood calcium concentration and bone analysis. Do you have further suggestions?"

"Not right now." She did not bother to add that anyone who had an idea which seemed promising, reasonable, or even slightly relevant should announce it; Status as well as the living crew would take that for granted. She went back to the basic problem.

"How do the chemistries of the three pools compare with each other and with any others you have on file?"

"All resemble each other in being essentially gels with apparently monovinyl alcohol as the dispersing agent. I have no basic data which would have let us predict that this compound would be so stable even at Titan's temperature. The most up-to-date bonding data I have suggest that the activation energy for its conversion to water and acetylene should be low enough to make the reaction almost explosively rapid even here. We are of course in a temperature range where tunneling

effects greatly complicate rate calculations, but ordinary theory still does not seem to apply."

"I suppose," Yakama interjected at this point, "that this could be all to the good if humanity survives and we have nothing to do but unravel the universe's pattern. I admit it complicates the survival problem, if this project is really a key part of it."

Even Belvew chuckled at the words, and Maria briefly but uselessly pitied the computer, which went on, "Subject to countermanding, I am isolating the sample under study in the mausoleum, though the behavior of those still in the commander's quarters at normal life temperature suggests that trouble is not likely."

Humor and pity were replaced promptly by other feelings. Foreseeing biological contamination by Titanian samples was routine; not foreseeing possible explosion risk was more than embarrassing.

"When a situation is thermodynamically unstable, as when there is a lot of free oxygen around in contact with reducers, there's always one reasonable explanation," Yakama pointed out.

"I'm glad you didn't say *only* one. The general word 'life,' without more specific additions like 'photosynthesis,' isn't much better than 'supernatural' as an explanation," the commander reproved him tactfully but firmly. "Have you any specifics?"

"Not yet, but I think something's cooking. I want to get more comparisons."

"Status is watching."

"I think this may be a bit abstract for mere statistics—but give me anything you spot, Status."

"Of course," the nonhuman voice responded. This phrase meant explicitly that the command was superfluous because it was already in effect, but Seichi did not apologize. There wasn't time, actually, as the computer went on, "there is a discrepancy heavily masked by turbulence effects but gradually becoming plain, between *Crius*' power settings and airspeed. Move slowly, Sergeant Belvew, you have other bones at risk, and there is no obvious immediate danger to the aircraft."

Belvew may have stopped moving, but began speaking.

"The pipes picked up something in the lake, remember? Something that burned out later. Show us the wings. You can override the programming that keeps the plane itself off the screens, can't you? You can watch all the camera fields."

"Yes."

The Aitoff in Belvew's quarters did not change, but smaller screens suddenly displayed much of the wings and stabilizers of *Crius* for examination. Maria quietly requested the same information, and both examined the areas carefully. Not even Belvew felt certain of what it was he saw, but he said thoughtfully, "Status, do you have camera viewpoints enough to get solid images of these fields?"

"Yes. I have them, but doubt that you could perceive anything significant without my setting in exaggerations which would destroy the image meaning for you."

"But there *are* changes."

"Yes."

"Describe them if you can't show me."

"Irregular areas on the wings carry a coating, never more than a fifth of a millimeter thick and much less in most places, of a varnish-like material which would be colorless to human eyes, though it absorbs strongly in some infra-red bands. On that basis as well as the background events it is probably organic."

Yakama smiled, knowing no one could see him.

# Absolute Magnitude

"This is just on the wings?" he cut in. "Not on stabilizers?"  
"Right."

"And the stabilizers were not immersed in the lake, but the wings were." This was not a question, and not even Belvew answered it. He did not remain silent, of course.

"Commander, I suggest we break off this grid run, slow the jet down enough to make it safe, and play with the wing camber. It would nice to know whether this stuff is frozen and will crack off, or—is different."

Maria, silently thankful that Belvew had not given the suggestion as an order to Akagewa, asked the latter, "Cheru, did you hear that?"

"Yes, Maria."

"How about it? Practical? You're high enough."

"I'm still in heavy—turbulence, and wouldn't—like to slow—down much farther. Let—me finish this bar—of the grid and get—out into quiet air first."

"Right." Maria indulged in no superfluous nod; she, too, was at home in the Waldo suits.

"And Status!" added Belvew, "keep close track of the thickness of that stuff on the wings, starting right now. Don't wait until Cheru starts trying to stretch it."

"I am recording and will make a general report of any change."

Maria did not let the next few minutes go to waste.

"Seichi, how is your chemistry going? Or did this new item distract you?"

"The analyses are going well, and the event *has* distracted me. I want a chance to analyze whatever is on *Crius*' wings. Can that be done without landing her near a lab?"

"I don't see how," the commander replied slowly and thoughtfully. "Any suggestions, anyone?" A silent pause ensued. "All right. Cheru, when you get out into quiet air, head for the factory—no, the lake is closer. Tell me when you're clear and I'll give you a heading. You haven't made a landing before; do you want to swap with Ginger?"

"I don't think so, unless someone thinks this stuff on the wings will cause problems I can't foresee. If it's just going to affect wing stall, I can handle that—land a little hot. Gene?"

"Probably no trouble. At transonic speeds even tiny changes in airfoil shape can be tricky, but not this time. You'll be doing a lot more to the wing shape yourself as you make the landing."

"That's what I thought. Thanks."

All remembered, but no one mentioned, the *Oceanus*' last landing. Status would give warning now of hydrocarbon ice on the wings, but neither the computer nor anyone else would know what other warning might now be appropriate. Akagewa began to plan in detail just what flight tests he would make once out in quiet air, but did not bother to discuss them with Belvew; his own piloting experience might not be as great as the sergeant's, but he was sure he knew enough relevant physics. Belvew's higher rank seemed irrelevant just now; like everyone else in the group Akagewa was more scientist than soldier.

Belvew himself was a little uncertain about what he should be doing. He was by rights an observer, specifically an aircraft handler though like the rest he could put his skills and mind to almost anything. He had, however, come over the months to think of himself as THE pilot, and his present inability to fly was, to put it mildly, frustrating. It even left him feeling embarrassed about giving flying advice.

This was actually a healthy attitude; Cheru Akagewa could make stall tests, and Ginger Xalco could load and take off again, just as well without his looking over their shoulders.

Perhaps even better, since they were actually handling the controls.

The question of what was coating *Crius*' wings was up to Seichi and Status. Gene himself was not a chemist—for that matter, neither was Seichi, though he had inherited that aspect of Arthur Goodell's work. No one there was actually a chemist, or a physicist, or an astronomer, or a geologist, or a biologist; they were all generally well informed people, but the *knowledge* was mostly in Status' memory. The living minds were there to think and decide.

Even those of the *mere* observers. Belvew smiled at that thought. Then, after another two or three minutes' brooding, he told Status to abstract at a level somewhere between "franchise" and "specialist" and to begin feeding him biochemistry.

Ginger looked a little uneasily at the remains of *Oceanus* as she slid past, but did not allow the memory of Belvew's landing misfortune to distract her seriously. Loading items from the factory was straightforward but required care; one had to get close enough for the loading handlers to reach the jet, but not too close.

Wings could not be allowed to damage themselves against ground structures, and getting into a position which could not be escaped without exposing the factory to rocket exhaust would be highly embarrassing. The factory could, of course, be replanted, and a new version might in the long run be an improvement, but if the wasted time meant that they were all dead before their job was done the incident would still have to be counted a net loss.

She inched the aircraft slowly into position, wincing slightly as the tank gages forced themselves on her vision, and signalled the factory to start loading. A tube promptly reached out from a low extension of the main structure, passed over and along her right wing, and approached the fuselage. She relaxed slightly as the proper hatch opened to accept it, and her instruments showed that the seismic cans were settling into the right magazine. She felt even better as this filled and labs began to come aboard.

She was almost completely happy when the tube withdrew and left her free to fire up once more. Almost, because the mass gages were still looking at her. There were also chunks of fallen ice from the western cliff to be avoided. She felt quite proud of managing this without sending exhaust anywhere near the factory, but the gages still wore an increasingly more reproachful expression.

She considered the wind, and decided that even a slightly downwind takeoff would use less mass than taxiing to a better spot. She swung around to the southwest, carefully lined up with no visible ice fragments directly ahead and within several hundred meters, and pumped liquid into the arcs. She noticed on her Aitoff an ice boulder behind *Theia* caught in the exhaust and shattered to flying fragments, wished briefly that this could have happened early enough to warn Barn Inger, and really relaxed as her keels left Titan's surface. Looking for a thunderhead was routine.

Cheru was not particularly tense as Lake Carver came into sight ahead. It would of course be his first live landing, but he had followed through on many others. His recent tests indicated that the stuff on his wings would not affect the procedure.

He was coming in from the south; he didn't want either to overshoot and end in the lake, get involved with Belvew's Pool, or have the job complicated by even the tiny crosswinds Titan might furnish. He was taking a very small chance of ending his landing slide on the hill—he was aiming to stop between it and



the lake—but felt sure he could taxi out of danger in time even if the patch were in a sticky or polymer-eating mood.

He assumed incorrectly that Belvew would be watching, and felt relieved when *Crius* slid to a stop within a few meters of the spot he had intended. The hydrocarbon lake was a little over ten meters to its left, the pool/hill a little farther to the right, and the three surviving labs in clear sight twenty meters or so ahead. He had known before starting the approach that the fourth had now been completely absorbed by, or submerged in, the whatever-it-was. Akagewa was developing a sympathy for Seichi's view.

"Shall I save mass by letting a lab come here, or taxi closer to them?" he asked, rather expecting Belvew to answer.

"We have more mass than time. Taxi over," came the commander's voice. He obeyed, without actually being casual about his tank contents.

"That's about as close as I can get without overshooting," he finally reported. "Seichi, can that thing climb up on my wing from there?"

"Definitely not. We've faced that before. Even the wing roots are a couple of meters above ground, and no one ever figured these things might have to climb access ladders."

"Does that mean someone will have go down in person? We should have thought of this earlier."

"I did. I think we can manage, but I should have spoken up before you got so close. Let me walk the labs a little way ahead—sorry about your tanks—to keep them out of your wash, and then taxi a little farther. Slant toward the pool so your starboard keel gets a little way uphill, but keep a eye out so the left wing tip doesn't actually dig into the ground."

"Do you think the slope is steep enough to bring it that close?"

"Status says so."

"And that I have juice enough to get off after all this?"

"With a safety factor better than four, as experience goes so far, yes. Relax, Cheru. If you don't bet you can't win."

This aphorism had become an accepted code in the group for use when a colleague was becoming too cautious, so Akagewa lighted his engines without further remark. Two or three minutes later *Crius*' left wing tip was half a centimeter from the ground and Yakama happily directing one of the labs toward it. The device could not walk or roll up really steep heights, but irregular surfaces had been foreseen. The pro tem chemist maneuvered it onto the airfoil and worked it, with Status' help, over to a patch of coating which the human beings could not see.

It seemed unwise to use the sampling scrapers on the wing surface, but the labs were equipped to mop as well as dig. Within two minutes, Yakama had ten samples from as many different spots on the left wing and had started the lab back toward the tip, five meters out from the fuselage.

By the time it got there, the end of the wing was nearly three centimeters from the ground; the right keel was sinking. Neither chemist nor pilot would have known, but Status was on the job and gave a warning which caused Seichi to send his equipment tumbling off the wing and travelling as fast as it could toward the lake. Akagewa, by effort of will, kept his engines cold until the chemist reported the lab at the lake's edge and presumably as safe as possible. He had not yet risked another lab in the liquid, and was not going to take the chance with this one until the new specimens were analyzed—no one wanted to repeat the whole risky and time-consuming process.

On Seichi's word, however, he lit his fires and gave *Crius* all the thrust he dared. For a moment Cheru held his breath as the

right keel stuck, but then the craft lunged forward. For another moment the chemist held his as the lab's thermometer suddenly climbed. His heart might have suffered as well had he been watching the jet's dials and recognized the slight swerve caused by the pool's brief grip on the keel, which momentarily sent the rocket blast directly at the lab. The instrument started back down in less than a second, however, and in a few more Cheru reported his charge to be airborne.

There was at the moment no thunderhead visible over the lake, a fact which Maria noted as needing explanation sooner or later, but the pilot circled slowly as he climbed, spotted a likely mass source a dozen kilometers away, and headed toward it. General attention shifted from aircraft to analytical instruments.

"Any phosphorus?" asked Maria, recalling Goodell's readings of weeks before.

"More likely C-N-O." Belvew's return to the conversation was less surprising than his choice of subject.

"Why on Earth?" Maria started, and stopped. The sergeant ignored the tempting lead.

"Right now I'm betting on low-weight polypeptides. Nice, thin glue," he added. No one could see his face—few could imagine or even remember it clearly after the months of isolation—but no one missed the smugness in his voice.

"It will take a while to get structures," Yakama reminded them, "but you are probably right on the elements. No doubt you were taking hydrogen for granted. Should I do an optical macro search for coarse structure, such as cell walls, before I report? The lab's not really designed for it, but I could do something with the crystallography gear."

"I'm not *that* optimistic," Belvew replied more quietly. "Let's see if I'm right about the glue, first."

"I find no phosphorus," Seichi reported.

"There was before!" Belvew insisted.

"In the pool—the tar or whatever it is—not the lake."

"So it's more concentrated in the tar. Just what—"

"Sergeant, aren't you getting a little ahead of the data?" Maria cut in as smoothly as she could.

"Well, I suppose so. But I'll be really surprised if we don't find amino acids there. I've said it and I'm not apologizing," he added.

"You needn't," the commander responded soothingly.

"You needn't," Seichi came in almost simultaneously. "There are carbon-nitrogen single bonds and carbon-oxygen doubles, but no oxygen-nitrogen either single or double. Your chances of being right have just gone up several thousand percent, I'd say."

"That's all I want to know for now," Belvew replied happily. "Unless you need me, Commander, I have some more memory searching to do."

"Are you looking for something specific?"

"No, just pieces." The jigsaw puzzle analogy had long been trite in the station and needed no explanation.

"Shape, or color?" was all the commander asked.

"My tanks are full," Ginger came in before Gene could answer, if he had intended to. "Shall I pick up where Cheru stopped, start another turbulence grid, or what?"

"Drop half a dozen of your labs in any snow patches you can find near Arthur's Pool," Maria answered at once. "DON'T try to land there; if you wreck some of the labs we can make more, but aircraft are harder. Then set up that seismic grid you stocked up for. Status will give you headings and times. If you get tired let—oh. Hmph. I can't fly, Gene can't fly. Seichi should stay on chemistry as long as possible."

## Absolute Magnitude

"I could probably fly a seismic pattern, as long as it's high enough not to need any really fast pilot responses." Peter Martucci's voice sounded a little doubtful.

Maria shared the feeling and was silent for a moment. Belvew also said nothing, but his silence seemed to the rest almost as eloquent as words. He was in fact reading and had heard none of this exchange, and the silence was wholly irrelevant, but not even Martucci interpreted it that way.

"We may have to do that," Maria said after a brief hesitation. "You can last a few hours yet, though, can't you, Ginger?"

"Sure, unless I hit another of those turbulence patches and really have to fly instead of just riding. Any guesses on that, Status?"

"The remaining planned seismic grid goes in the hemisphere away from Saturn, and there is no present evidence to suggest that eclipse phenomena will affect air currents there. Please remember, however, that eclipse consequences are still highly tentative, so this should not be taken with confidence."

"Hmph. You certainly didn't call the other one. All right, I'll take the chance. Point me at Settlement." Status provided the heading without apology, and Ginger swung her charge onto its generally northward line.

Minutes later Akagewa also reported full tanks, and was sent back to finish his turbulence pattern.

Gene Belvew was feeling sleepy by this time, but his arm hurt. The only way to keep the pain out of his mind seemed to be concentrating, with study about the only form available. He had Status raise the detail level of the abstracts being skimmed from the huge knowledge bank, in order to keep himself busier and less aware of his discomfort. This worked more or less, but he also found himself less certain that he was understanding the material. He also found his mind wandering—wishing for the mechanical educators of classical imagination, for example. Too bad the human nervous system didn't work that way.

Information came in through the senses, and then—analogy took over. The jigsaw puzzle had to be assembled, and there was only guessing which piece should be examined next. One could hope it would be in the Titan box, and even in the biochemistry color, but it was only hope. Life was coming apart on Earth; but was it coming together on Titan?

Was the reason for the human catastrophe really chemical, as seemed so likely? This possibility had inspired the whole Titan project, which represented a major commitment of resource even with pseudolife and casual fusion energy cancelling nearly all the former costs of manufacture. It had still taken a lot of thought.

If it really were chemical, could the details of one process steer anyone to the right details of the other? He watched words and diagrams flow across his screen, sometimes demanding a rerun when he knew he was missing something, sometimes letting it pass when his mind wandered farther than usual.

Proteins. Carbohydrates. Condensation polymers. Activation energy and reaction rates—no, that meant less on Titan, where temperature were down near tunnelling takeover. Fragmentation. Random reassembly. Autocatalysis. Chemical evolution—were preconceived ideas steering him, and all of them, aside here? Chains and folds. Devolution; viruses, prisons—at least the diagrams were getting simpler again. Too simple? Similes instead of analogies?

Status stopped the input when the sergeant fell asleep. That processes also stopped in his head seems unlikely.

Ginger Xalco dropped the labs close enough to Arthur's Pool to be useful, though Seichi had to take a little time from pure

chemistry to direct them to the spots he wanted. She got from Status the heading toward the start of her next seismic layout and headed antisaturnward.

Peter Martucci spent as much time as he could spare in his Waldo suit working simulated flying problems with Status, trying to foresee as many situations as possible in which his intrinsically slow reaction time would really put a jet in danger. He had known, in a remote sort of way, that he might some day have to fly in spite of his disability, but had never grasped the need as a reality until now. Reality was forcing itself on the dwindling crew.

Seichi Yakamo mentally considered analysis results from the spots named for Arthur Goodell, Gene Belvew, and *Oceanus*, and wondered seriously whether all were on the same planet. In desperation he added the information from *Crius*' wing coating and, after careful lab maneuvering, Lake Carver itself. The results seemed not useful except possibly in the Sherlock Holmes sense: eliminate the impossible...

If you can recognize it, of course, Doyle should have added.

Maria Collos got some sleep. Cheru Akagewa got good flying practice finishing the turbulence grid. Status announced that the phenomenon was statistically almost certainly due to eclipses and that specific mechanisms could be investigated if anyone with an imagination were to suggest any.

Ginger heard the announcement and began to think; she was still far from the start of the can-dropping run, the air was calm, and flying took little real attention.

Belvew, still asleep, did not hear it and in any case was not currently interested in planetary air circulation. He slept until Ginger was nearly finished with the can pattern. He woke with an new idea in mind, wondered briefly how much chemistry he had missed, realized what Status would have done about that, ate without appetite—the station's foods were genuine meats, fruits, and vegetables grown from cloned tissues and perfectly palatable, but he just wasn't interested in food at the moment—and addressed a question to Seichi.

"Have you checked the experiment in the mausoleum?"

"No. I've been too busy with the other comparisons. Status must have its progress, if you need to know."

"I don't want anyone to tell me yet. I woke up with the web of an idea, and I want to add some threads. Just a test prediction—Status, I'm guessing that nothing measurable has happened to the body infected from Maria's hand. Right?"

"Correct, Sergeant." The word "test" had probably influenced the computer's choice of title, but did not move it to ask questions. Those came from the living minds.

"Why not?" Maria, also recently awake and alert, and Yakama striving to trace Belvew's thinking, spoke almost together. Gene characteristically responded with another question.

"Did you settle the composition of the stuff on *Crius*' wing? Was it really protein fragments?"

"Not entirely. There were a lot of smallish polypeptides in the one-digit kilodalton weight range, polymerized carbohydrates involving mostly three or four-carbon sugars of the same general mass, and a lot of combinations of the two—sort of protein-carbohydrate hybrids."

"Fragments of prebiotic stuff, in fact." The hearers could picture Belvew nodding happily in his quarters.

"Or of disassembled pseudo or real life molecules," Yakama said carefully. Maria felt amused sympathy; for once, wishful thinking could reasonably be presented as fair-minded objectivity.

"That stuff came from Lake Carver, right?"



## Simile

"Presumably."

"Where I first landed and blew a lab into the wa- the lake?"

"Yes."

"Status, what are the chances that those little molecules on the wing could be remains of that lab?"

"Quantitatively, none. Even assuming that the lab dissolved into only the local part of the lake and didn't diffuse far, there is far too much of the material to have come from that source."

Belvew seemed undaunted.

"But if you ignore quantity, how about composition?"

"Structural resemblance is significant. I have heard Colonel Goodell use the word 'striking' in similar cases."

"All right. Seichi, how about molecular fragments in the one now swallowing *Oceanus*? Are there any, and are they similar?"

"Basically similar," Yakama replied, "but different in detail. I've been trying to make that out—oh!"

"Yes." Belvew *had* to be grinning. "Chemical fragments from jet skin instead of labs, replicated I don't know how many times. And from Arthur's Pool, Status? Was it his armor, or Arthur himself?"

"The latter." The voice was of course unemotional.

"Why didn't you predict that, too?" asked Maria.

"Because I could only have guessed. Fifty-fifty is pretty sad odds compared to a few million or billion to one."

"You predicted that nothing would happen at Titan temperatures in the mausoleum, in spite of what happened to Maria's arm."

"Water ice is a mineral when it's that cold. Solid state reactions are geochemistry, and take a long time."

"And where do you get those million-to-one odds you're bragging about? And what do they cover? And why does it make you sound like a kid unwrapping a book-shaped birthday present?"

"I get the odds from the molecules. They cover what's going on in what we've been calling 'tar pools' here, where the solvent isn't water and we have nice, wet, solution-rate reactions. I'm happy because we've done our job. No, wait, don't tell me I'm jumping even if it is a commander's duty—or a scientist's, Seichi. Just listen for a minute."

Even Ginger swallowed her rising words.

"Look—listen—I mean, think. You know what prisons and sub-prisons are—bits of protein which can catalyze other bits into taking on their own forms without complex copying reactions—especially without DNA or RNA intervention. They're the sort of things you expect to develop wherever life is possible but hasn't really started yet—sorry, Seichi, but that's where Titan is. Carbohydrate polymers can do the same sort of things, and some of the new diseases come from those, just as the protein ones caused scrapies and kuru and a few hundred others these days. You also get them when natural life or artificial pseudolife molecules get degraded. Every time we let ourselves contaminate Titan—my slips at Lake Carver and the bad landing of *Oceanus*, Arthur's experiment at Settlement—we've provided Earth life or pseudolife molecule fragments. We worried about biological contamination of Titan as a matter of experimental control; we didn't really worry about affecting its evolutionary history. We didn't worry at all about pseudobiological contamination. But we didn't think vinyl. Vinyl alcohol has been shattering what dissolved, and the fragments have been duplicating."

"So how does that mean we've done our job?" asked Ginger before the commander could start a reproval speech. "I get the feeling we've spoiled it, if you're right."

"So Earth learns from our mistakes! We've influenced prebiotic chemistry and chemical evolution here on Titan—we'll have to make sure of that, of course, when we can figure out how to test some of the pools *without* contaminating them with our labs—really inert scrapers, maybe; can anyone think of a way to get gold or platinum out here?—*but we've been influencing life chemistry at home all along!*"

"By developing pseudolife and nanomechanic technology? People have been checking out that idea for decades, and it just doesn't check!" Ginger was still negative; Maria now was biding her time. She had responsibilities, after all.

"No! Not from our tech products! From *ourselves*! Our own bodies! Don't you see? It was always *possible* for people to produce protein fragments—casual prisons—that might damage either other people or themselves. Usually the chances were negligible, and when it did happen the results either went unexplained or got other explanations—I'm not the only one who can be wrong, Major. When human population and transportation facilities grew exponentially, everyone could be and was exposed to everyone else's molecular wreckage. The results had to grow exponentially, too! We're a population of—just a minute—spongiform encephalopathics."

"Not all the new diseases are neural. *You* ought to know." Maria pointed out in a much calmer tone than she had planned; a wildly undisciplined idea suddenly seemed to be doing a drunkard's walk more or less toward reason. Humanity was at it again.

"Don't quibble—uh—Major."

"Sorry. But even if you're right about all this, what does it suggest as a solution for humanity? To quote one of my old teachers, there's a distinction between accounting and accomplishing, and between comprehension and craftsmanship."

"Simple. Just the way we've protected ourselves here."

"But we're not overpopulated!" objected Ginger.

"But we're not safe, and we know it. We take care of ourselves. We haven't been in contact with each other for months; we've even gotten out of the habit of using vision when we talk to each other, though I admit that's overdoing it. We're quarantined—isolated!"

"And you think that can be done with Earth's population?" Ginger was now openly sarcastic.

"Why not? Well, not completely, but down to really small groups. That'll get easier as the population shrinks, and we might reach a decent equilibrium at maybe a few hundred million people. Status can probably figure that out."

"If provided with appropriate data, certainly," replied the computer. Belvew was not diverted.

"Company's mostly for discussion and general social purposes, anyway. You don't need a *lot* of it."

"Sergeant, will you turn on your vision and repeat that?" snarled Ginger.

"Sure, if you will. But how about it, Commander?"

Maria had no chance to answer. A dozen warning bells and lights clamored and flashed for attention. Ginger gave a startled exclamation as her accelerometers, both linear and angular, showed weird combinations of numbers.

"Turbulence! You said it was safe in this hemisphere!"

"You read too much into my report. I tried to warn of its limitations. The turbulence is at least partly due to change in aerodynamic configuration—look."

The Aitoff screens, ordinarily programmed to show no part of a jet's own image, changed for everyone. Part of the new field was hard to see, as the background scenery was spinning

# Absolute Magnitude

madly. The visible sections of *Theia*, however, were stationary with respect to her cameras, and caught all eyes at once.

The left wing, from just outboard of the engine, was gone, and no trace of it could be seen by anyone in the whirling background of Titan. The break was ragged but uninformative.

"Did I hit something? I was awake, and you weren't slipping a reality-break on me, Status."

"You were, and I was not. You did not strike anything in the air. My images showed nothing in your neighborhood. The wing simply broke. without anything I could interpret as a warning. There does not seem to have been any turbulence, or to be any now, since I have analyzed the current motion pattern."

"Have you any control? Can you possibly land without any more damage?" asked Maria.

"I can't stop the spin, even with the other pipe completely cut out," was the answer. Belvew gave a yelp of pain.

"What happened, Sergeant?" asked the commander.

"Don't mind me. I just broke another bone. Ginger—no, Status—were any tar pools in sight from *Theia* just before this happened?"

"Yes. Two."

"Good. Ginger, if you can control at all, try to head for the nearest. We might as well get another test out of this. Crash in it if you can."

"You—"

"Do your best, Major. We'll understand if you miss," Maria cut in.

Xalco cut both engines completely and nosed down, but there seemed to be no combination of thrust and airspeed which would let her override the vast difference in lift now existing between the two sides. The spin continued, but the ground was clearly approaching on all the screens.

"I could imagine—it happening to me, after—what Gene's been saying," remarked Akagewa thoughtfully from the extension of his turbulence grid, "but Ginger never—picked up any contamination on—that wing, did she?"

No one answered. Even Martucci was trying to follow, or even anticipate, mentally Ginger Xalco's efforts with *Theia*'s controls. There were faint cheers each time the dark patch which was clearly her target moved a little closer to the screen center, slight gasps and groans when it circled farther away.

"Ginger! Rocket mode! Full thrust on both pipes!" Belvew suddenly cried. Whether the pilot saw his intent was merely taking any suggestion no one ever asked. "Flatten the right wing. Eight points camber on the left—and I thought the designer was an idiot to have those handled separately! There!"

The spin stopped with startling abruptness. "Nose up! Get out of atmosphere! Status, give her a heading for Station intercept while she can still steer!"

"I have it. Thanks, Gene."

"Not worried, were you? Remember you're not on board."

"I did forget. You would have too. And don't ask me to put on vision, please." In the privacy of her quarters, Major Xalco wiped her scalp once more. Belvew might have had something to say, but the commander came back to current business first.

"Sergeant Belvew, I like your imagination. I'll send your suggestion in as soon as you phrase it more definitely and supply appropriate references. Be careful, as it will be under your own name."

"Thanks. Or is that—"

"That is fairness, whether you are right or wrong."

"But—"

"I will also commend strongly your use of imagination. I would recommend you for a field commission except for one thing."

Belvew said nothing, and was invisible, but his question was there.

"Your imagination needs discipline—a word important in both military and scientific life, as you seem to be forgetting. You are far too sure that your hypothesis must be correct. I am taking the only step I can see to correct that failing."

"That's—what—"

"I am assuming it will take you some tens of hours to prepare YOUR report. When you have submitted it, I will allow an equal amount of time for you to submit a plausible alternative hypothesis. Both will go in to Earth together. Am I clear?"

For just a moment Belvew hesitated. It was tempting to point out that he had already spent many hours on his idea, and that it was unlikely for another to occur soon. He was too sensible even to think of suggesting that no other might be possible. But he said nothing. Another fact was staring at him.

Major Collos was a good officer. She would never, ever order anyone to do something she wouldn't do herself.

And that meant she must already have an alternative explanation for Earth's pandemic and an alternative suggestion for human policy. *Already.*

No. She'd never, never bluff.

Or would she?

No. Certainly not. It would be Unmilitary. Unscientific. Unprofessional. Uncharacteristic.

So she had an idea.

And Gene Belvew had better come up with one at least as good, on his own, because he'd never learn hers; it would never get on any readable or tappable record until he either managed to obey the order or ran out of time.

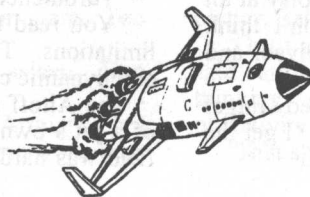
He considered resuming his scan of the chemical memories—lower detail for speed, or higher information?—but settled for pure thinking.

He didn't even allow himself to feel either disappointed that the Titan project was probably not yet over or relieved that the human story might not be. Stories never did end, anyway.

"In orbit. Thanks, Gene," Ginger's voice came abruptly. "How do you think it'll take us to grow a new wing tip? I suppose we'd better check for a possible contamination cause for the break, before we start repairs."

He didn't answer. He didn't hear. He didn't even notice Status working over his broken bones.

Gene Belvew was back to thinking, and Titanian society was back to normal.





## AN INTERVIEW WITH ALLEN STEELE

Allen Steele became a full-time science fiction writer in 1988 following publication of his first short story, "Live from The Mars Hotel" (Asimov's mid-dec. '88.) Since then his work has appeared in England, France, Germany, Spain, Italy, Poland, Brazil, and Japan. Steele was born in Nashville, Tennessee. He received his B.A. in communications and an M.A. in Journalism. Before turning to science fiction, he worked as a staff writer for daily and weekly newspapers in Tennessee, Missouri, and Massachusetts, and spent a short tenure as a Washington correspondent, covering politics on Capitol Hill. His novels include *Orbital Decay*, *Clarke County*, *Space*, *Lunar descent*, *Labyrinth of Night*, and, most recently, *The Jericho Iteration*, as well as a collection of short fiction and essays, *Rude Astronauts*, and a book length novella, *The Weight*. His work has appeared *Asimov's*, *Fantasy & Science Fiction*, *Omni*, *Science Fiction Age*, *Journal Wired*, and *The New York Review of Science Fiction*, as well as several original anthologies. *Orbital Decay* received the 1990 Locus award for Best First Novel, and *Clarke County*, *Space* was nominated for the 1990 Phillip K. Dick award. Steele was first runner-up for the 1990 John W. Campbell Award, and received the Donald A. Wollheim Award in 1993. He now lives in St. Louis, Missouri, with his wife and two dogs.

**Absolute Magnitude:** I understand that you have a new hardcover out. What can you tell me about it?

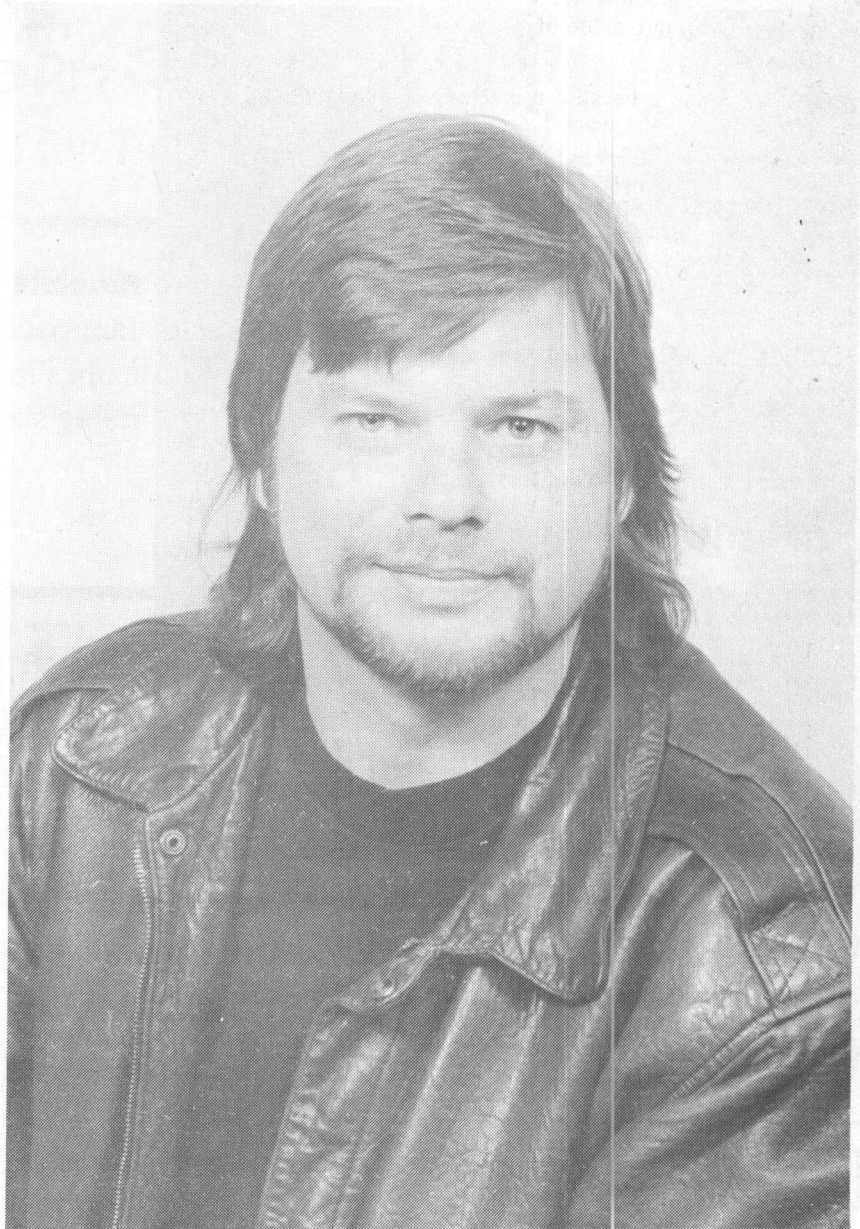
**Allen Steele:** It's titled *The Jericho Iteration* and is the first non-space novel that I've written. I wanted to take a break from writing about space exploration. I felt like, for the time being at least, I had said everything that I really wanted to say about near-future space exploration and that if I tried to do anything else with this subject I stood the chance of repeating myself. This story had been in my mind in one way or another for a long time. In fact, when I was living in New Hampshire I originally intended to set it in Boston, but after I moved to St. Louis it slowly began to occur to me that I was living in an even better place to set this story. So much of near-future urban SF is set either on the East Coast or the West Coast New York or Los Angeles. Not all that much has been written about the American Midwest yet, the central Midwest is often where a lot of social changes do occur. Since the novel is about the coming of an American tyranny it occurred to me that if there is any sort of attempted take over of the American government it may well start in the Midwest. Anyway, that was essentially what it was. I was trying to meld together science fiction and the conspiracy thriller, and I think it worked out pretty well. A number of people who don't like SF, but who like this type of novel, have enjoyed this book. It was, for me, a departure, but I don't think I'm going to write a sequel. I thought about it for a while. In fact, I attempted to write a follow-up to this but it collapsed after about three chapters and I said to hell with it. I'm now working on something a little different.

**AM:** Are you ever planning to go back to the universe that you created in *Orbital Decay* and *Clarke County*, *Space*, or are you planning to explore some new territory now?

**AS:** Well, yes and no. I am going back to that universe. The book that I've been writing this last month is a return to that particular time line. But I'm setting it further out in the future. I'm treating the

events in *Orbital Decay* and *Clarke County*, *Space* and *Lunar Descent* as being history. It takes place about fifty years after the events in *Clarke County*, *Space*, in the last decade of the twenty first century. So in that way I can kind of

have my cake and eat it too. I can return to that chronology but I'm not repeating myself. I can't use any of the characters from the earlier novels because they're all dead. I can take all that stuff and treat it as being historical background and then



create something new on top of that. And I've actually written a few things in that mode before writing this book. I have a long novella that was just published in England called "The Weight" and a couple of short stories which are set in the same time-frame.

**AM:** *Orbital Decay* received the Locus Award for best new novel and you were nominated for the John W. Campbell award, does that put a lot of pressure on you.

**AS:** In a way it does, because it creates a lot of expectations for what I do. I've come to realize that, because I published a lot of stuff in a short period time, there is a perception that I'm a Come-out-of-no-where-kid. So I don't have the liberty to screw up. I can't turn in a clunker, at least not any major clunkers.

**AM:** How did being labeled "the next Heinlein" effect you?

**AS:** It was awfully flattering, but it's not true. I don't look at myself in the mirror every morning and say "Yup, there's the next Heinlein." I can see where the comparison comes from. Heinlein's early work is about near-future space exploration, so is mine. I think that was a label that was put on me, and as much as I've tried to get away from it, this must be the forth or fifth interview where I've said I'm not the next Heinlein. Recently I've come to realize that I'm going to have to live with this label, but I'm still trying to write fiction that is uniquely my own. I'm not trying to be the next Heinlein by any means. I'm trying to be the first Allen Steele.

**AM:** That makes sense and it seems like a much better target.

**AS:** [Laughs] The comparison that I've made before, and I'll make it again, is that for years new rock singers have been compared to Dylan. Critics and reviewers take a look at a new singer and say this is the next Dylan. The only singer that I can think of who escaped this label was Bruce Springsteen, and Springsteen had to completely change his style to get around it. A number of other singers decided that they would be as Bob Dylan as they could and ended up being consumed. I think the same thing happens to writers. The "next Heinlein" label seems to be quite popular. There are at least five writers out there right now who have been labeled the next Heinlein. If those guys want to be the next Heinleins they can go,

right ahead, they have my blessings. Personally, I'm going to try and get away from it.

**AM:** Since so much of your work focuses on near future space exploration I thought I'd ask you how you think the U.S. is doing with its space program.

**AS:** We're basically treading water. I don't think that having a working space shuttle alone is much of a space program. NASA has very ambitious plans for sending unmanned probes out. There's going to be a replacement for the Mars observer, the Cassini-Huygens probe is supposedly going to Saturn and dropping a probe onto Titan; I'm very interested in that. There's supposed to be an asteroid flyby which is being done with the European Space Agency. There is even talk about sending a probe out to Pluto. The problem is that in the current budget environment, we can probably expect several, if not all, of the projects to be curtailed. It seems that the only way we're going to get that space station built is by doing it with the Russians, which is kind of a pact with the devil because the Russians are even more financially strapped than we are.

**AM:** And they've already got a space station.

*Continued on page 44.*

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# Absolute Magnitude

**AS:** Right, they've already got a space station. Although we're told that their space station will be obsolete in two or three years.

**AM:** Obsolete? In comparison to what?

**AS:** Exactly. [Laughs] They say it was only intended for a ten-year life expectancy and it has already exceeded that. I don't think we'll be going to Mars any time soon. I wish we were, but even the most stripped-down plans, like Robert Zubrin's Mars Direct, have a price tag of fifty billion dollars. I wonder where we're going to get the money to do that. At this point in time the future of manned space exploration lies mostly with the Europeans and the Asians. Japan has some very ambitious plans to colonize the moon and use it for mining materials for building solar-powered satellites.

**AM:** Do you think the U.S. could turn into the Portuguese of the space exploration era?

**AS:** It's very possible at this point in time, we may be repeating history. We may be like the Portuguese who discovered the New World and then frittered away their navy. The European Space agency is also looking at going it on their own and returning to the moon. In the next century it may be the Germans and or the Japanese doing the things I wrote about in *Orbital Decay*. I have mixed feelings about that. I'm glad somebody will be doing it. I would rather the Asians or the Europeans do it than it not be done at all. On the other hand I would much prefer my country to do this, but, unless something changes very soon I don't think that's going to happen.

**AM:** Do you find it intriguing that when the U.S. does get back to Mars they don't plan to take a closer look at the face on Mars or the pyramids?

**AS:** Not Really. When I wrote about the alleged face and the pyramids on Mars in *Labyrinth Of Night*, I was simply using that as a basis on which to hang a science fiction story. Honestly, I don't think there are extraterrestrial artifacts on Mars. I'd be *real* damn surprised if it turned out that the face was anything but a trick of light and shadow. If and when we send another probe to Mars, and if and when it flies over the Cydonia region and takes high resolution photographs, I'd be real surprised if we saw the face there again. I'd be willing to bet that the next time we send something over the face and

photograph it, it's going to look completely different.

**AM:** Tell me about the typical day in the life of Allen Steele.

**AS:** A typical day? It's more like a typical evening. I wake up pretty early and goof off during the day, or at least it looks like I'm goofing off. I go get the groceries, answer a little bit of mail, read a couple of magazines, do some research, that type of thing. I screw around a lot, but all the time part of my mind is on what I'm supposed to be writing. At about five o'clock I fix dinner, then at six o'clock I go upstairs and check my e-mail, maybe tap into the Internet to see what's going on there. But whatever happens, by seven o'clock I slip the disk into the computer and start working. I do a minimum of three pages, usually five. That takes as long as it takes. Sometimes I'm through early, by nine or nine thirty. Other times I may be sitting at the computer until well after midnight. But I always make sure I do at least three pages and I aim for five. I do that five days a week, religiously, to the point that even when I go on vacation I take along a spiral note book and at night I'll write in long hand, because if I don't I'll go crazy. It does make for a rather prolific output. I shoot for one novel and four short stories every year. Last year I did well, I wrote a novel and six short stories; which means that this year if I turn around a novel and two short stories I'll still be okay.

**AM:** For you, what's the most rewarding part of being a writer?

**AS:** When you see the book on the shelf; when you actually go to the bookstore for the first time and see the book sitting there. That's the culmination of the whole thing. I like that a great deal and I never get jaded on that experience. The second most rewarding part is the writing itself; even when I'm having a hard time with it, I'm still having a lot of fun. The novel that I'm working on right now is a real bitch, I've had to restart it four times. I think I've got it this time. Even though it doesn't always feel like I'm having fun, I know that really I'm enjoying the hell out of myself; otherwise I wouldn't be doing it.

**AM:** The least rewarding part of being a writer?

**AS:** The least rewarding part of being a writer. . . [pauses to think for several moments] Bad reviews. Sometimes you can get a bad review and still learn from it. I'm not as down on critics as I used to

be. I'm now able to distinguish a bad review from a bad reviewer. A bad review can be written by a good critic and you can learn something from it. But a bad review that's written by a bad or sloppy critic, somebody who has obviously missed the point of the book or who picked up the book having decided even before reading page one that he was going to slam the thing when this type of thing gets into print, it really pisses me off. Another thing I don't like about this racket is that, in terms of making a living it's a tough job. I don't earn a check every two weeks the way that I used to when I was working as a journalist. I can sometimes go for months without seeing a check in the mail and that can be a real nasty experience. People sometimes romanticize the idea of the starving artist living in a garret. I've worked under conditions of poverty and there is nothing romantic or creatively inspiring about it whatsoever. It's real hard to write good fiction on an empty stomach. I see those times every now and then when the bills pile up and I've got maybe fifty dollars in the bank account and I ask myself what the hell am I doing. Maybe I should get a real job. But I keep going I haven't had a real job since 1987.

**AM:** That would be awfully nice.

**AS:** If you say so. [laughs]

**AM:** How did you get started in Science Fiction?

**AS:** From the very beginning of my life I've been reading it. It's funny, I've got a copy of a children's book upstairs on my desk that I'm using a quote from for my next book, *Tranquility Alternative*. It's [the children's book] called *You Will Go To The Moon*: it was published in 1957. I found a copy of it in a used book store and was happy as hell to find it. As far as I can remember, that's the very first book I ever read. It's about a little boy taking a trip into outer space. The first fiction that I read on my own was Robert Heinlein's *Rocket Ship Galileo*. By the time I was in the fourth grade science fiction was a major staple of my reading. It naturally followed that by the time I was fifteen years old I determined that I wanted to be a science fiction writer when I grew up.

**AM:** Can you tell us about your plans for the future?

**AS:** I'm working on a new novel which has gone through many changes of title. Right now its working title (it's gone through five titles) is *The Kronos Affair* I

won't tell you any more about it. I've got another short story collection which I've turned into Old Earth Books called *All-American Alien Boy*. It's a collection of all of the non-space near future stories that I've done in the last few years. The next novel is *The Tranquility Alternative*, which is an alternate history novel about the U.S. space program. That's coming out in January or February of '96. After I get through this novel that I'm working on now I don't know exactly what I'm going to do.

**AM:** When it's all done and you've written your last word, what do you hope to have accomplished?

**AS:** I'm not planning on writing my last words anytime soon. I'm going to keep on writing until I drop. As far as long-term goals go I'd like to have a career as long as Fred Pohl or Jack Williamson or A.E. Van Vogt. I hope that they find me dead at the keyboard. That's one of the things that writers can look forward to. At sixty-five nobody gives you a gold watch and makes you retire. You can keep writing as long as you want to.

**AM:** Maybe take longer vacations.

**AS:** Yeah, true. There are times that I would like to go on hiatus and take some time off from writing and do some things. I hope to do that sometime soon. I haven't traveled in a very long time. It's about time that I visit some other countries. I'd also like to see if I can actually get through a month without writing anything. What do I hope to accomplish? The obvious answer is to tell some good stories. I think the minimum that a writer can expect, and should expect, to do is produce work that is worth the time of a busy person to read. I would like to think that some people maybe inspired by what I write about space exploration to support real life space exploration. I would like to think that in the future people may say that my work helped keep the ball rolling, but that's rather ambitious.

Shortly after doing this interview, Allen Steele sold the film rights to "The Weight" to British film producer Paul Berrow. This, coupled with the interest of a Hollywood producer in his work has caused Allen Steele to put *The Kronos Affair* on the back burner. Allen is currently adapting *Orbital Decay* as a screenplay.



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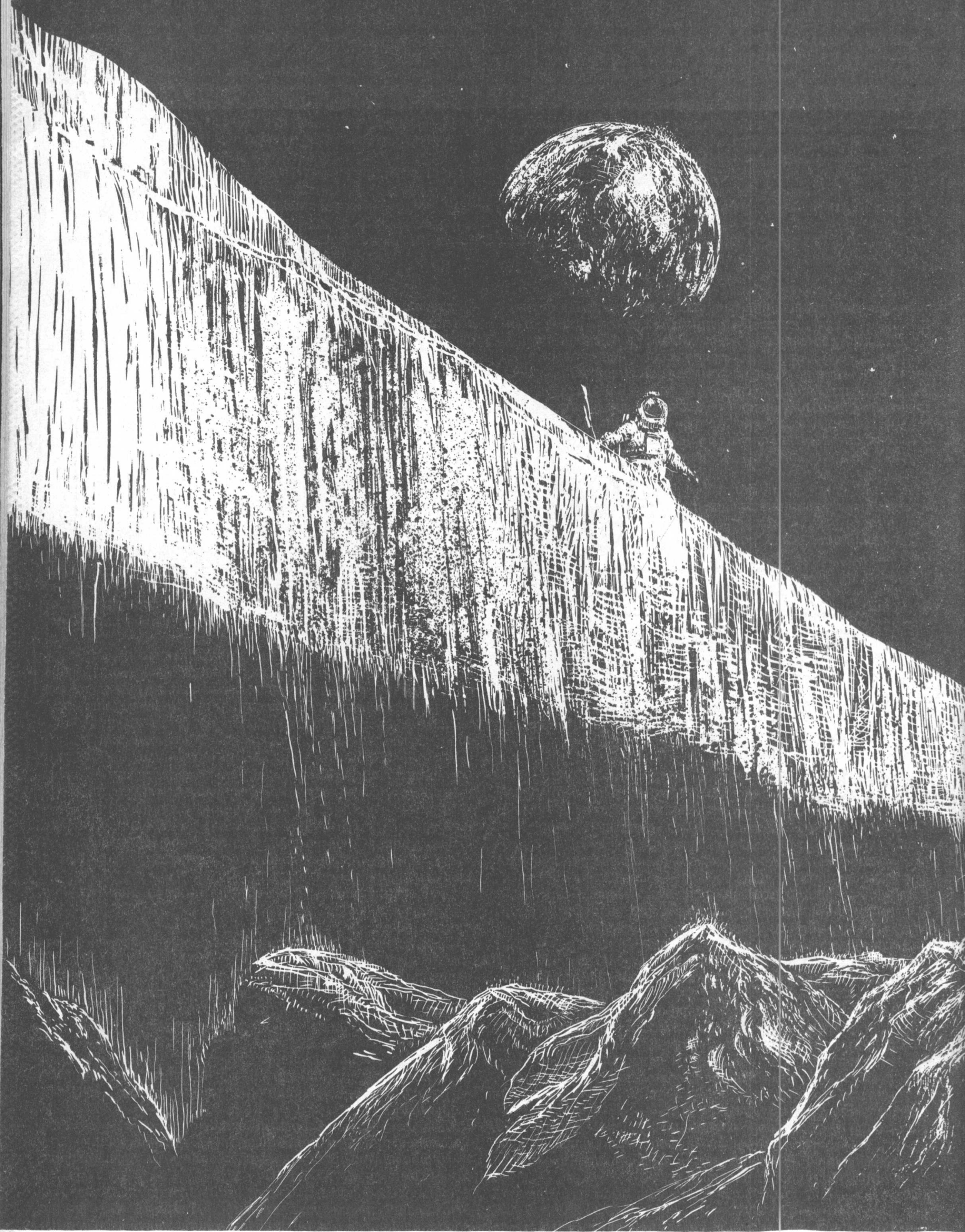
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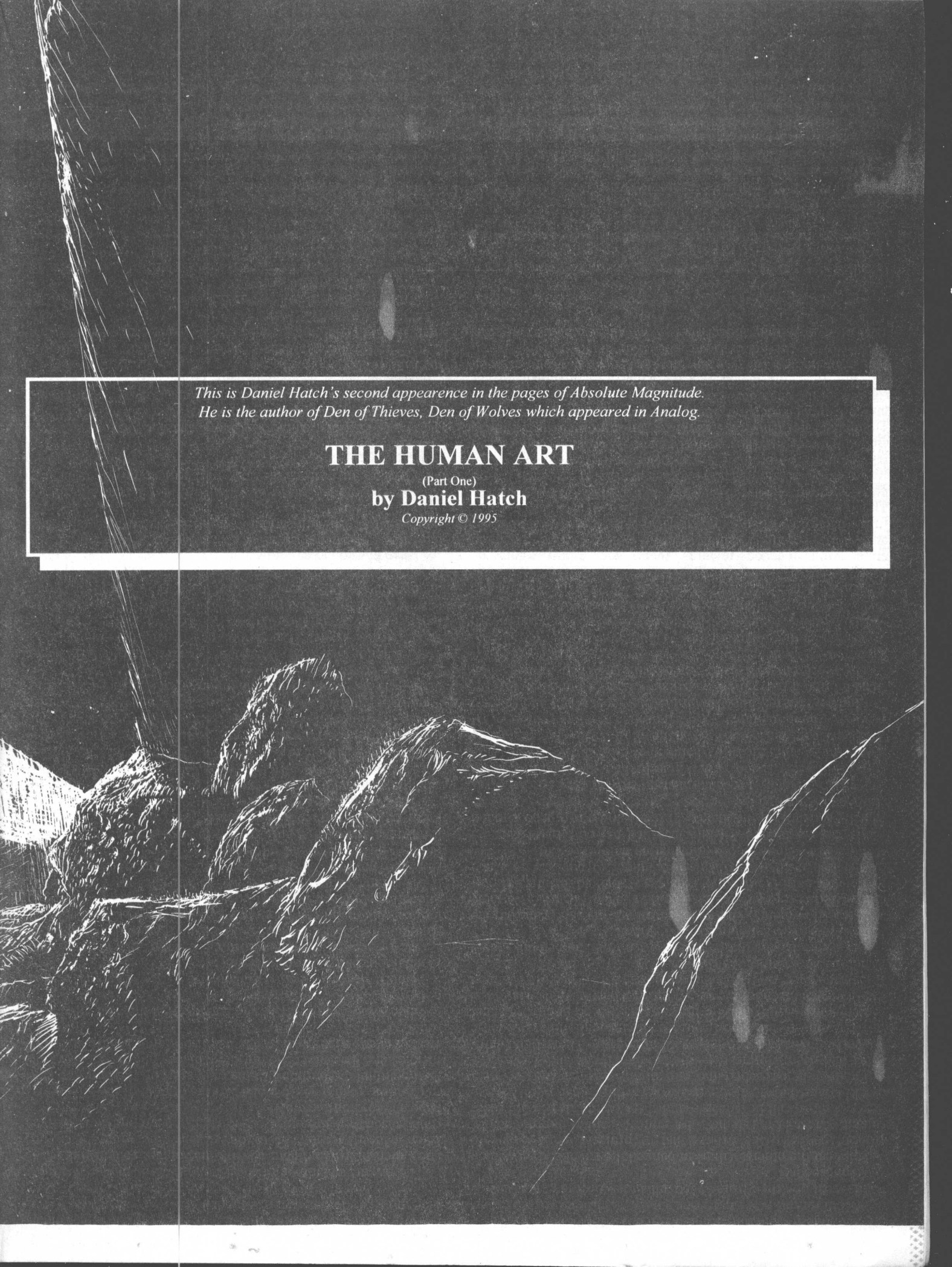
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*This is Daniel Hatch's second appearance in the pages of Absolute Magnitude.  
He is the author of Den of Thieves, Den of Wolves which appeared in Analog.*

## **THE HUMAN ART**

(Part One)

**by Daniel Hatch**

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# Absolute Magnitude

## ONE

Ellen Brindamour suppressed a wave of vertigo as she looked out over the edge of a deep cleft in the jumbled lunar rock.

The gap was thirty meters wide and just as deep, it maintained a laser-straight edge for a thousand meters in either direction. Deep earthlight shadows hid the base of the far side, but she could see that the bottom of the cleft was covered with loose rock and moondust.

"The entire fault subsided all at once about eighty hours ago," said a voice in Ellen's ear. The voice belonged to Patricia Claridge, the engineer who stood beside her. "Over the long term, this is a pretty active piece of the moon. But it's usually quiet during any given month and there hasn't been any more shaking since then. These things don't happen every day, but they do happen."

"Only this time it was at a particularly inconvenient place, right?" Ellen said, pointing up to the north where the remains of three tubeline sections lay shattered on the floor of the cleft. The severed mouths of the tubelines yawned on the far side. On this side, the hulking serpentine shape of the nearest tube rested a few dozen meters away.

Ellen looked back to the east. She was just high enough on the western wall of Alphonsus to look down on the crater floor. The crater's central peak fifty kilometers in the distance, was full ablaze in the "late afternoon" sun, an antenna farm glinting at its top. And closer at hand, where the long shadow of the crater wall reached towards them, the bright lights of civilization burned—Crater City to the north, Mandela Town to the east, and Titania and Lunograd to the south. About a million people lived in the settlements that crowded around the high ground here in the west end of Alphonsus, but she saw only the fraction of the architecture that broke the lunar surface. Most lunarians lived in tunnels and warrens cut deep in the rock and breccia.

The tubelines snaked off towards Titania, with a branch heading north a few clicks downslope. Upslope, beyond the break, they climbed the crater wall towards Scienceville.

"You could call it inconvenient" Patricia replied. "The folks upramp from here are calling it a lot worse. Seeing that they're cut off from the rest of Alphonsus, I don't know if I can blame them much for that."

"Especially considering what Westwall's done."

"Especially," she said.

"Have they given any explanation for not letting you reroute through them?"

"Not in public. Mostly rumors, unofficial reports."

"Privately?"

"Nothing that I know of."

"Come on, Patty, you're not telling me everything. Remember, I'm just up from Earth and I don't know much about local politics." That was a lie, of course, or at least a serious stretching of the truth. But it was necessary at the moment. She knew enough, but she wanted to hear it from a lunarian.

"Well..." her pale cheeks turned pink as she stammered. "It's the separatist thing."

"Separatist thing? Tell me more."

"You know about the Riots back in the '90s, don't you? Over the Unification Government and the Separation Resolution—the one that never passed? Well, Westwall voted in favor of it and Scienceville voted against it—and then the

Intervenor showed up. Then the riots broke out and the two of them haven't gotten along ever since."

"And this is part of it?"

"Sure. I mean, no one in Alphonsus likes the folks up there anyway. They've got an attitude that doesn't help things any. Even the techs and engineers. It's like they don't want to rely on local help—but since Earth is 400,000 clicks and eight hours away, they'll put up with it."

Ellen knew that, of course. She'd studied the evaluations before leaving Pearl Harbor. But no amount of Human Science could substitute for a report from someone on the scene.

"What have you got to do to fix the tubes? And how long is it going to take?"

"Build a bridge first—a trestle to get across the gap. That's going to take a couple weeks to do right. Then remount and patch the tubelines—another week."

Ellen took a deep breath, then asked the crucial question.

"Is there any way that the fault could have been triggered intentionally?"

She saw Patricia tilt her head sideways behind the glass panes of her spacesuit helmet.

"You're the second one to ask that question," she said at last. "Scienceville has been after us since it happened to find a trigger—a device of some kind. They aren't sure what—although they've made some wacky suggestions about what kind of technology to look for."

"So?"

"So what?"

"Have you found anything?"

"No—of course not. And we've been looking, too. It sounds crazy though. Who would do it? You don't really think the fault was set off by lunar separatists?"

"I don't know," Ellen said. "But I've been told that when it comes to lunar politics, never underestimate anyone."

She hopped along, kangaroo-like, as they returned to the engineering shack. The muffled crunch of the moondust beneath her feet and the soft whir of her suit's fans were the only sounds she could hear. Ellen climbed into the airlock first, followed by Patricia. While the airlock cycled through, she noticed the pattern of moondust that clung to her suit like wet sand. Once inside the shack, Patricia quickly stripped off her helmet and sleeves and headed for the cooler for soft drinks. The rear compartment was empty, though the muffled sound of voices was audible from the work areas up front.

Patricia handed an egg-shaped bulb full of fruit juice to Ellen as soon as she wrestled her arm out of her sleeve.

"So are you ready to make the fix?" she asked Ellen.

She smiled, wondering whether she should play Patty along or set her up for a shock. Neither, Ellen decided. She was innocent and well-intentioned and there was no call for mischief. And she was just what Ellen had been looking for when she asked the Titania Engineering Co-Op for an assistant engineer. In many ways, Patricia Claridge reminded her of herself just a few years back, when she'd been an engineer of a different sort on a different world—Mars, where she'd met her first Intervenor.

"Yes, but not on what you're thinking of. You see, I'm not really an engineering consultant from the Pittsburgh Co-Op. I'm not an engineer at all, though I used to be one once. Patty, do you know what an Intervenor is? That's a silly question, I know. You think you do, but you don't really. Let me explain..."

# The Human Art

They called it Human Science, Ellen told her. But she didn't tell her what it was like to turn it on yourself.

In the classroom, it was all reason and light. The principals were clear and logical. The connections between the inner structure of the psyche and the outer structure of society were stripped bare for anyone to see. Although it was difficult to make predictions from the knowledge, the dynamic processes that drove the two—the inner and outer aspects of human existence—could be delineated, outlined, characterized, and known to the same degree of certainty as astronomical constants and chemical equations.

But she still recalled the shock when she first applied those lessons to herself and her own family.

Ellen's brother had been an Only Child. That was the basic fact of her childhood existence and she had always considered it to be the most important influence on her own personality. She had always blamed him for the family's loss of status and had made her life miserable—while she was very young and on into adulthood. She had always resented his interference and in the end she had run off to join the Corps of Planetary Engineers to escape.

And she had always felt angry and disappointed that her parents hadn't done more to restrain her brother. They had been strict and distant and as Ellen grew up, she came to realize that they also blamed her for the loss of their Ringside condo in Pittsburgh and their displacement to an Outside sector of the arcology, a neighborhood full of breeders.

But Human Science cast a different light on all that.

She learned to see her parents as victims of their own social assumptions. Why did status make a difference to them? Why did it matter where they lived? The answer was simple: they had no other way to give meaning to lives constrained by the limits of the Pittsburgh arcology—or worse, by the limits of a few corridors and compartments within that vast urban machine.

Her father was a medical technician who spent his day with computers and lab equipment. Her mother was a librarian who spent her day with computers and optical ROMs. They had grown up much like Ellen had, removed from their own feelings, disengaged from real contact with the society around them. It was no wonder that she had found a niche in the engineers that allowed her to pretend for years to be nothing more than a calculating mind in a grey uniform.

But then Ellen had learned Human Science and connected the links between all those forms of self-denial and the sterile social life on the Pittsburgh arcology that fed the denial. And in doing so, she factored out the blame and the guilt, banished the anger and frustration. She saw her family and herself as the products of their environment. They had all been capable of rising above that environment—she was proof of that. But she found she could hardly blame them for not doing so.

There was only so much that science could explain, however. Ellen still wondered to this day what had driven her mother to disrupt her family's life by having a second child...

"So anyway, an Intervenor uses Human Science to figure out ways to untie the knots that people tie themselves up into. It's supposed to help us predict the consequences of social decisions so we can defuse a crisis before it develops into violence and chaos," she said to Patricia. "But there are limits to it. Life moves fast and you have to watch it close to be sure you're doing the right thing."

"How do you know it's right?" Patricia asked.

"You don't—not really. There's a process you go through to figure out what to do. This is part of it."

"What is?"

"This conversation. This inspection trip. Whatever else I do as long as I'm here pretending to be an engineer from Pittsburgh. Most of it is fact-finding—but it's more complex than that."

"Seems like there's a large margin for error."

"There is. That's why we have to be careful. The main rule is to do as little as possible, as little as necessary. We're not trying to remake society according to our own values. We're just trying to keep things evolving on their own, instead of falling back."

Just the same, the words sounded a little hollow, even to Ellen. It was as if she were trying to convince herself. After three years as an Intervenor, Ellen had no serious self-doubts. But the same experience told her that there were never any really satisfactory solutions to a problem serious enough for an Intervenor—just compromises. Some were good, some were bad, and some were too muddled to tell.

Those three years had toughened her in ways she'd never expected, and softened her at the same time.

Life as an engineer had been satisfying in its way. She'd been a pilot, which gave her more to do than sit around crunching numbers while waiting for comets and asteroids to make their long circuits of the solar system and complete the corps' grand plans to terraform the planets. But then she ran into an Intervenor on Mars, and life was never the same afterwards.

She had left the corps to become an Intervenor and spent a year in school learning Human Science. Then they put her in the field, throwing her into the middle of the complex and endless struggles of human society.

She had never really thought of herself as a woman while she was in the corps. She hadn't thought of herself much at all in those days. But that had changed too.

Every time she made a decision as an Intervenor, it made her stronger. She began to see her role, at least in a small way, as something like that of Madame Chandra and Lillian Tregaskis—the great women of the past generation who had done so much to bring the human race together under the Unification Government. To Ellen, being a woman meant stepping in and setting nature right, seeing to it that society grew together in a healthy and rational way.

And, from time to time, it almost meant cleaning up after the mess that men had made of things. Of course, she didn't really blame male political leaders for all the problems of the world. She knew the Science too well to accept that simple rationalization. But she knew it well enough to recognize that there were serious shortcomings to what could be called a "masculine" style of politics. Shortcomings that she knew could often be countered by the equivalent of a woman's touch...

"So what does Human Science tell you about us here on the moon?" Patricia asked. "What deep dark secrets does it reveal?"

"No secrets, deep, dark, or otherwise," Ellen said. "Human Science only shows what's already there. The problem is that most people ignore reality and replace it with a comfortable fantasy. Like any science, you have to strip away the illusion and deal only with the underlying material facts. Take human character, for example. Most people are blind to character differences. They don't recognize their own because it's hidden by a lot of self-serving lies. They only recognize someone else's character when it's different from their own, but then they blame all the differences on the other person. Human



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Science teaches you how to read character, recognize its social and historical roots, and see how it connects with existing social realities."

"Can you read my character?"

She smiled, and then handled Patricia gently once again. "You're a young woman from Titania. I've only known you for a few hours, hardly long enough to get to know you at all. But as a Titanian, you've inherited a social character that's easily described. You're from a young settlement, still in the process of building up a techno-industrial plant—so you're more likely to be independent, optimistic, and flexible."

Patricia smiled. Ellen returned it, but then, to maintain her own sense of honor and honesty, she revealed the sharp edge of Human Science to the young woman—still smiling to soften the cuts it could inflict.

"Those are the good points. The same historical facts also mean you're probably unsophisticated, easily misled, and myopic about complex social processes that don't have an easily identified technological analog. And that makes it hard to explain to you some of the nasty realities of your older and more established neighbors here in Alphonsus."

Patricia didn't even flinch, making Ellen feel just slightly relieved. "You mean like Westwall and Scienceville?" she asked.

"Exactly..."

Ellen drank a pod full of black coffee before recovering her helmet and sleeves.

"What now?" Patricia asked.

"I've been thinking. You never did say if you thought it was possible to trigger that fault collapse artificially."

"We considered the question pretty carefully after Scienceville started squawking about it. They're right. If you put enough energy into the right spot, you're pretty surely going to knock something loose. We figured that you'd have a hard time predicting just what, though that doesn't rule out the possibility of sabotage. But we still haven't found any evidence of tampering."

"Right. But there are two ways of approaching the problem. Scienceville has you looking for the agent—a device of some kind. But what about the agency?"

"You mean lunar separatists?"

"Exactly. The theory rests on the existence of both. Let the rest of the Co-Op look for the device. We'll go see if we can find the separatists."

"But where? And how?"

"We can start in Westwall. Let me worry about how."

She and Patricia suited back up and cycled through the lock once more. They crossed the gap between the two four-meter-high tubes, entering the distant one through a hastily cut hole in the exterior wall. Patricia led the way to the container, holding the door open for Ellen as she climbed inside. They waited while the lock pressurized, then continued on into a forward chamber filled with five rows of seats. They sat down in the front row, behind the narrow window and the control panel.

"Are you ready?" Patricia asked. "The tubes weren't designed for public transport, so the ride will be a little bumpy."

"Just like it was on the way out," Ellen said.

"At least as bad," the engineer replied.

She fastened the straps of a safety harness across her waist and slipped her feet under the rail in front of them. "Whenever you're ready," she said.

Patricia pressed the red lever in the center of the panel forward and the tubeline container lurched into motion. Through the window, Ellen could see the brightly marked ring of orange and yellow come closer. Outside that ring, she knew, was a gravitron accelerator—a piece of cosmic string tied in a loop around the tube. When they reached it, she braced herself for the sudden push.

They passed through the loop—and the twisted space within it. The accelerator grabbed the front of the container first, and the floor was yanked along. A second later the rest of the container and its contents passed through, Ellen included.

There was no sensation, no more rude force—for those inside the container, the acceleration was unnoticeable as they all were warped at once and shot along by the pseudo-gravity created by the cosmic string.

A moment later, they were jerking and twisting along the tubeline at several hundred kilometers an hour, suspended above the floor by super-conducting magnets.

Similar gravitron loops lined the tube, especially where they went up a grade, to keep the cargo containers moving along. A series of ten or more boosted the material up the two-kilometer slopes of the crater wall to Scienceville. Several others in the downhill tube slowed the plunging containers before sending them into Titania.

Ellen tried to watch the walls of the tube slew by, but they were moving too fast and her eyes tired quickly. She turned away, looking at the metallic details of her spacesuit and brushing moondust from her boots. Then, barely two minutes after taking off, another orange-and-yellow ring flew past and the container slowed abruptly—once again with only the briefest sensations of deceleration.

She held her breath as they slid to a stop a moment later, Patricia working the red lever that controlled the brakes. This transition, accomplished with brute mechanics, was nowhere near as smooth as the gravitron assist. She felt herself wrenched around as the container was grasped by automatic machinery, removed from the tubeline, and deposited on the platform.

"This way," Patricia said, as she escorted Ellen out of the container and into a dressing room that she recognized from her departure an hour earlier. Ellen found her locker and stripped off the spacesuit, changing back into her own clothes.

Then she and the young engineer passed through the security scan. The monitors were oversized and indiscreet, with waving tentacles that ran up and down past their arms, legs, and torsos.

Ellen felt her mouth grow dry and her heartbeat pick up in pace. She did not expect the scan to detect anything out of the ordinary, but not because there was nothing to detect. She had come on this assignment equipped with a military-class security computer, capable of penetrating domestic monitors like this one and overriding their commands, inputs, internal blocks, and anti-hacker systems to keep itself concealed.

She had access to much more powerful technologies, of course. And as an Intervenor, she carried the full authority of the Unification Government back on Earth. She could expect her instructions to be carried out by any office of government on the moon, all the way from the ward and borough leaders of Titania, to the administrators of Westwall and Scienceville, to the Alphonsus Common Council in Lunograd, all the way up to a detachment of the Paramilitary Police stationed in Plato several hundred kilometers to the northwest.

But she wasn't ready to exercise any of those vast powers. Not yet. And when it came to the Paracops, she didn't know if she'd ever be ready. She knew the last Intervenor to do that

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here. The last she'd heard of him, he was still struggling with his guilt over the ensuing riots and those who died in them.

In the meantime, she wanted to maintain her low profile. So she let out a longheld breath when the security monitors had completed their task, Ellen's secomp whispered in her ear: "Scan completed. Monitors report nothing unusual."

A green light came on over the exit door to verify the report and Ellen breathed a little easier. She and Patricia quickly found the ramp leading up into the main transportation terminal of Titania.

## TWO

By tipping her head way back, Ellen managed to just bring the cloud-swirled sphere of Earth within her view. It seemed small, lost in the swarm of stars at the peak of the sky, but it was made solid by a crescent of shadow along one side.

Before she knew it, the light gravity of the Moon worked against her earthbound sense of balance and she found herself falling over backwards. She waved her arms helplessly as she settled slowly to the deck, looking up at the steel girders that supported the great glass dome of the terminal.

"Would you like a hand?" asked Patricia Claridge, a wide grin breaking across her freckled face. "I promise not to make any smart remarks about being Earthstruck. It happens to about a quarter of all newcomers."

She extended her hand and Patty lifted her entirely off the floor, then held her steady as she got her feet back under her.

"I can understand why," she said, feeling the hot flush of her embarrassment steal across her cheeks. "I spent a few years on Mars, but that was years ago. It's been a while since I went low-G."

"You get used to it fast," Patricia said.

She looked around and was thankful that only a handful of passengers remained in the terminal to witness the incident. Oddly, she expected more. Even the port back in Pittsburgh was busier than this—and it served a population about the same size as the million residents of the Alphonsus crater. Hologrids listing departures for Plato and Tsiolkovsky craters within the hour showed that it was used, but she'd been told that lunarians didn't travel much and the evidence bore out the report.

"Is there someplace we can talk privately," she asked Patricia.

"You mean in confidence? Not outside of Westwall—as far as I know."

"Don't worry. I've got a secomp with me. As long as no one is close enough to eavesdrop, I can take care of the electronics."

Patty looked about, then steered her towards an alcove filled with ferns, palm trees, and flowers. Ellen made an adjustment to the security computer and sat down beside him.

"I want you to brief me on the technical specs I might be expected to know on this job," she said. "They told me I'd be passing myself off as an engineer on the tubeline break. I've got an engineering background, but I don't know any more about tubelines than I do about superstring mechanics. I don't want to blow my cover the first time someone asks me a question."

"That wouldn't do," Patricia said. "For the most part, all you need to do is look smart and let me do the talking."

Patricia went on for several minutes describing the cleft and the equipment that would be needed to bridge it, breaking into the incomprehensible jargon of her specialized field. Ellen

tried to take special note of the more arcane terms so she could use them in an emergency to confuse anyone who might be listening. She'd had no small amount of experience at this kind of subterfuge.

"We should get going before someone checks a monitor and wonders why we're sitting here flapping our lips without making any noise," she said after a while.

"Right this way. The moondog for Westwall leaves in ten minutes."

She followed Patricia through the terminal, thankful that the other woman was carrying her bag while she tried to negotiate a gravity field only one-sixth that of Earth's. Her steps carried her more than twice as far as they did back home and she moved more than twice as fast. It was an inverse-square relationship with gravity, she recalled, making the exact difference equal to the square root of six—between two and three. She was thankful for the high ceilings and thick carpeting.

"Are you sure you want to do it this way?" Patty asked as they reached a gallery of airtight doors, all closed but one, which opened into the dock where the moondog sat. "We could go straight to Scienceville instead, you know."

"We have to start somewhere," Ellen said with quiet determination.

They boarded the moondog with a few minutes to spare. A clear dome covered the top of the gravitron-powered bus, revealing the wide floor of Alphonsus Crater and its high walls in the distance as they glided away from the terminal.

Ellen found an outside seat and glued her face to the window. The moondog gained a little altitude, enough to give her a view of the settlements to the north and south—clusters of glass and steel rooftops. The lunar settlements were like arcologies in reverse, each extending a thousand meters beneath the surface in a complex of tunnels, warrens, caverns, and tubeways. Under each kilometer-wide cell of rooftops and domes lived about 40,000 people—five cells for Titania, eight for Lunograd, five for Mandela Town, three each for Westwall and Crater City, and two for Scienceville.

Surrounding them were the yellow-green agriplexes—as deep and wide as the city squares, but filled with biomass. From this angle, Ellen thought she could see down into the leafy depths of a satellite of Titania. She wasn't sure if it was an optical illusion or true perspective.

The moondog headed west, and in a few minutes it crossed into the darkness at the base of the mountains. Westwall sat at the crest of the ridge and the craft had to climb steeply towards its goal.

Her eyes adapted quickly to the reduced light, and she could make out the glowing amber stripes of the tubeline connecting Westwall with the Titania and the spaceport behind her.

A similar line climbed the craterwall a few clicks to the north—but that one stopped near the base. Clustered around the end was a collection of blinking blue and red lights—the kind Ellen usually associated with a slidewalk accident at home.

She extended the azimuth of the interrupted tubeline up the mountain to see where it led and saw the sparkling white lights of another lunar complex—Scienceville.

"That's where we're going, isn't it?"

"Eventually—once we get through Westwall," Patricia said. "But exactly how we get there could present something of a problem."

"A big enough problem to warrant an Intervenor?"

"I guess so. They sent you, didn't they?"



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They certainly had, she thought with grim satisfaction. Now it was up to her to decide if it had been necessary.

It took a few minutes for Ellen and Patricia to pass through the dock and into the Westwall complex proper. She took a deep breath through her nose and suddenly was transported back to her childhood home in the Pittsburgh arcology.

The air carried a thick, sweet smell, organic and salty, with hints of mold and mildew. It was the smell of compressed humanity, sealed inside metal cans and supplied with poorly filtered air through an aging cooling system. The flavor was the same, whether on the moon or back in Pittsburgh.

Ironically, much of the technology that had made the arcology where Ellen grew up possible had come from here. Westwall was the oldest of the Alphonsus settlements. Two centuries ago, mankind had learned here all the tricks of coping with a high-density sealed environment.

The age of the place was revealed in the well-worn floors, the patina of decades of use on the surfaces and contact points of doors, walls, and counters, and in the style of construction. Ellen's engineer eyes noted the heavy iron beams and girders underlying the settlement's architecture despite the best efforts of interior designers to conceal them. They were a sharp contrast to the graceful aluminum and titanium shell of the spaceport or the strandsteel that held Pittsburgh together.

Of course, Westwall was much smaller than Pittsburgh—about 125,000 souls in a complex of warrens that extended for three cubic kilometers throughout the high ridge of the craterwall.

Ellen's hometown was ten times that size in population and volume. She knew that the smaller scale of the lunar community meant that the conflicts and disputes that simmered within its confines were all the more intense...

She paused to query the security system and look around the chamber. Virtual images appeared before her eyes. Earlier, back in Titania, the air had been thick with monitors, penetrating sensors, listening devices, scanners, and the wide array of modern equipment used to ensure social order both here on Luna and back on Earth. But there was none of that here.

A set of video monitors projected from apex of the arcing girders that held up a glassy dome over the commons, but the secomp labelled it as a traffic and emergency system with no human operators at the other end of the datalink. A set of public commstations in the corners of the commons stood out in her artificial view of the chamber, but the secomp indicated that they were hardshielded against eavesdropping.

Otherwise, the space was barren. Even the dozens of men, women, and youngsters who criss-crossed the commons were free of security systems, lacking the electronic ident-badges worn by Patricia and everyone else back in Titania.

"What's with this place?" she asked in restrained whisper.

"What's that?"

"There's no security systems to speak of. Why not?" She kept her voice low.

"No need to be discreet here—no one is listening. Westwall is part of another era, kind of old-fashioned in a nice way—at least in my opinion. The people who built it were Old Americans—back before World War Three and the breakup of the States. They've got a different attitude towards monitoring systems—and a lot of other things besides."

"As I understand it, that's part of the problem."

"I'll let you judge that for yourself. I'm just an engineer. You're the specialist."

Ellen nodded.

They crossed the chamber and took a semicircular tunnel on the far side. It wound in a gentle curve away from the center of the commons until it opened into a long, high-ceilinged gallery. A row of arches lined the far wall, with a series of oversized airtight doors beneath them—all closed, sealed, and marked with red lights.

"This is the tubeline station for Scienceville."

"Looks deserted," Ellen said.

"That's right. It's hardly been used for nearly ten years. Since the Riots. And now even the few containers that used to shuttle between here and Scienceville have stopped running."

"What do we do now?"

"The logical thing to do would be to query the system operator. At least it would if we were just a pair of innocent engineers trying to do our job."

"You're innocent enough. But I'm reading from a different work order. Let's skip over the system operator and go right to the top."

"You mean the head of transport?"

"The very top—the administrator of Westwall herself."

Patricia's eyes widened, then she let out a low whistle. Ellen looked at the young woman with odd humor. Patty was younger than she was and lacked the evidence of experience and wisdom that she knew marked her own features. But she was tall and strong and attractive in her youth. Any young man would have found her a fit companion.

The government offices of Westwall were accessible from a wide common area beneath a thick glass atrium. Where Titania's domes had spanned similar spaces unbroken, this structure was supported by a framework of iron girders.

Sunlight broken by a spiderweb of shadows fell across the entrance to the lunar equivalent of City Hall—a high arched opening flanked by palm trees and potted gardens.

Patricia led the way into the complex, but Ellen took charge of dealing with successively higher levels of officialdom. They were ushered along into more elaborately decorated chambers with decreasing numbers of occupants until finally they found themselves passing through the high double doors of a carpeted office.

Within, they found a grey-haired woman seated behind a stainless steel desk.

"I'm Magda Grant, Chief Administrator of Westwall. What can I do for you this watch?"

Patricia took the lead as they had planned earlier. Ellen kept her mouth shut and watched carefully. She introduced herself and offered Grant their ident-badges, who placed them under an optical reader on the shelf behind her and watched as a virtual display presented her with their contents.

"Tubeline engineers on your way to Scienceville," Grant said. "You want to use the maintenance shuttle."

"That was supposed to be the program," Patricia replied.

"I'm afraid you've come the long way around only to be sent back. The tubeline to Scienceville is closed at this end."

"That's what we've been told. I thought the only break was down below—on the link with Crater City and Titania."

"It's not a technical problem."

Patricia nodded slowly. "I think I understand."

Ellen decided she had remained silent long enough. "I'm sorry, but I don't understand," she said. "Maybe you could explain."

Grant sighed, then looked back at the readout from Ellen's ident-badge. "Your associate is from Titania and is familiar

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with our politics. You're from Earth and you're not. Let me give you some advice—don't get involved."

"I still don't understand. Why are we being prevented from completing our duties?"

"You are not being prevented from doing anything but using the tubeline between Westwall and Scienceville. If you want to get there, you'll have to go back and hire a moondog—assuming you can find one that will take you there."

"And for what reason?"

"Scienceville is under boycott from Westwall."

"By whose order?"

"By mine, of course," Grant replied. "As long as the people who run Scienceville want to make accusations instead of repairs, they can find their own way to get what they need from the rest of Alphonsus. We don't see any reason to make life easier for them. After all, they've never done anything to make it easier for us."

"Aren't you running the risk of turning a minor technical problem into a more serious crisis?" Ellen asked, probing more deeply.

"It's no more serious than they want to make it over in Scienceville," the other woman said, revealing a touch of resentment.

"I'm told they think it's serious enough to call for an Intervention."

Grant's features flushed with sudden emotion, her eyes widening and her nostrils flaring.

"Typical of them," she spat. "I'm sure they'd just love to have an Intervenor come up here and start ordering the rest of us around." She turned and retrieved their ident-badges from the reader and tossed them onto her desk.

Rising, she waved them away with a broad sweep of her arm.

"There's nothing more you can do here," she said. "You'll have to return to Titania and make your arrangements there."

Ellen and Patricia backed up and slid the door open. But before they left, Grant narrowed her eyes at Ellen and pointed at her with a crooked finger.

"And don't you get any ideas about calling for an Intervenor yourself. No one here is doing anything but exercising their rights—and the record will show that to anyone who wants to examine it."

Ellen felt a sudden chill as they hurried out into the hallway and back towards the tubeline gallery.

"Did you see enough?" Patricia asked when they were well clear of the gallery.

"Enough for what I need," Ellen said. And enough to remind her that men were not the sole proprietors of politics based on suspicion, resentment, and aggressive selfishness.

"Anything in particular? I mean besides the fact that Magda Grant is a cantankerous old moonbat. I just hope I never get that way"

"I'd put it in more clinical terms, but that's about the size of it. If you put it into context, it means a little bit more than that."

"Do you think she's a separatist?"

"Probably, but not an official one. She seems willing to be an obstructionist when it comes to helping Scienceville, but I'm not sure she'd be willing to sanction outright sabotage. It's not to the advantage of an established government to antagonize its neighbors—at least not without a lot more going on than I've seen so far."

"She doesn't like Scienceville, that's for sure."

"Obviously. And the resentment goes back to the riots. The problem with this place is that it saw a major Intervention less than ten years ago. A lot of people are like her—resentful and bitter about it."

"I remember the last Intervention. I was still in secondary school at the time. About all that really stands out are the riots. Westwall probably has more reason than anyone to feel resentful about the whole thing. They lost the most people."

"True," Ellen said. "And when it was over, they lost a lot of political power to boot, even though they made up for it in resource allocations."

"Titania was at the center of it, wasn't it?" Patricia asked.

"The root cause. When your complex blossomed, it ended up with a lot of people and economic power, but too few representatives on the Common Council. That's a recipe for disaster and it didn't take too long to cook. We had to reorganize the council and order a lot of administrative changes to settle things down."

"Were you in on that?"

"No, that was before I joined the service. But I've met the man who was here..." Her mind wandered off in search of an old memory while they crossed the commons on their way back to the moondog docks. She smiled inwardly and felt an uncommon warmth when she found it.

"Are there going to be riots again?" Patricia asked grimly.

Ellen felt a chill as she recalled the face of the Intervenor who still carried the burden of those terrible days.

"Not if I can help it."

### THREE

"How long before the next moondog for Titania?" Ellen asked as they returned to the commons.

"There's one every hour," Patricia replied. "Why? What have you got in mind?"

"You haven't given up on our hunt, have you? If we want to find separatists, we have to look where they live—down below inside the settlement."

"That makes sense to me. Anyplace in particular you want to start. My great-grandparents live here, so I know my way around their quad. But anywhere else and I couldn't guide you much past the upper levels."

"You didn't tell me your family was from Westwall."

Patricia blushed, then laughed. "I guess you're not the only one with secrets."

Ellen laughed with her. "Good. I'd love to meet your great-grandparents. Let's start with them. If it's all right..."

The young engineer looked flustered, then recovered. "Why not? Follow me."

They crossed the floor of the commons and descended a broad ramp into the depths of Westwall.

Patricia took them on a fast-paced walking tour of Westwall, descending level by level, past chambers filled with chugging compressors and forests of pipes and valves, compartments of control panels and lights, airshafts where sunlight sliced through layers of dust, and long corridors thick with colored holograms, sharp smells, echoing music, and surging crowds.

They talked as they worked their way deeper and deeper into the settlement.

"So what else can you tell me about character?" Patricia asked her.

"What else do you want to know?"



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"You described Titania. How about the other settlements? Do they have characters too?"

"Of course. I'm not saying that the people of Westwall or Scienceville or wherever aren't individuals. But on some things, they share similar attitudes and patterns of activity—usually without thinking about it. The things they share help outline their character."

"But what are they? I mean, what's the character of the people in Westwall?"

"You tell me. Your family lives here. You should be able to."

"Not me," Patricia said. "I'm just an engineer."

"You did all right describing Scienceville."

Patty frowned, then scowled. "Okay, Westwall then. They're kind of old-fashioned. I guess because they were the first settlement in Alphonsus. It was built by Old America—before the States broke up. They think they're kind of special—not like Scienceville, not arrogant, more like they've got some special connection to history. You'll see what I mean when you meet my great-grandparents. I guess they are special, though. They aren't afraid to talk about freedom and man's destiny in space or a lot of other Old American ideas."

"What about the other Americans? Crater City?"

"They're West Americans. They're sort of like Westwall in a lot of ways, only more so. They're more flamboyant. Loud-mouthed and cocky, if you want to be honest about it. They think they know how to do everything and they won't hesitate to tell you so. They'll tell you all about freedom, but nothing about destiny. I think for them, it's just a license to enjoy themselves."

"Sounds like fun," Ellen said.

"So I've heard."

"Who else? Mandela Town?"

"The South Africans have more money than they know what to do with so they spend it all on clothes."

"That evaluation is a little one-dimensional, don't you think?"

"I guess so. Just a first thought. They came up into space to protect their share of the precious metal market, you know. Back when platinum starting flowing into low-Earth orbit from the asteroids."

"That was a couple of centuries ago."

"That's right. They kept putting their platinum into the bank until they ended up owning the bank. And I'm not kidding about their clothes. They've got suits that would cost me a month's free-pay—a year's worth, some of them. You can tell the difference by the way they talk. The ones with the more expensive suits haven't got a trace of an accent—RNA implants or hypno-conditioning, I think. But the ones who think of themselves as native lunarians still have a touch of the old dialect. It's their way of being different, if you ask me."

"You're doing great, so far," Ellen said. "How about Lunograd?"

"The Russians? They're great. Proud and independent. A little shady when it comes to making a deal, but they can get almost anything for you. They're all over the place here in Alphonsus. They've got restaurants, hock shops, and gray markets in every settlement."

"Very good for an evaluation, under pressure. You've got a nice eye for character. Any separatists in the bunch?"

"Thank you. I'm not sure how the politics all fits into it, though. I mean if you want to go looking, you can stay away from Scienceville—they think they're still back on Earth. But

the others, I guess it's a mixed output. Crater City is probably full of them. Mandela Town is probably split—some of the younger crowd, the ones with the banter in their voices, may be with them. But the village elders aren't. Too conservative. The same is probably true of the old Russians. They tend to cling to old habits, avoid change. But then there are some I would expect to fight for it passionately. They're like that."

"And what about Titania?"

"Us? What do we want with separatism? We're too busy building to worry about politics."

"It looks like an awfully messy stage to act on," Ellen said.

"Speaking of messy stages, I don't believe this place," Patricia remarked as they wound their way into narrower tunnels, crowded with archaic machinery and streaked with grime and grease. "Don't they ever clean up around here?"

Ellen was slower to criticize. Pittsburgh wasn't much better, though it wasn't as old as this. Some of the equipment here was antique—mechanical air-blowers, electric heaters, water pipes that leaked around rust-streaked makeshift plugs.

They traversed a long cavern lined with shops, cafeterias, offices, and public areas, all framed with iron beams and girders speckled with rust from too much humidity. The cavern was thick with spindly-legged lunarians bounding from storefront to storefront in low-gravity arcs that invariably came too close to her for her peace of mind.

Still there were no signs of the electronic surveillance systems that filled the corridors of Earthside arcologies. But that made sense as well. These tunnels had never known the horrors of the homeworld's wars—with high-tech terrorist armies infiltrating the burrows of their enemies past sophisticated electronic defenses in a twilight struggle between fragmented nations.

And if the Intervenors were successful in their mission, they never would.

"Gang way!" Patricia shouted as they crossed a wide tunnel on their way towards a residential quarter of Westwall. Her warning came at the same moment as an electronic alarm from her scomp.

Ellen looked back just in time to see a metal and plastic box about three meters high and two wide come rolling towards her on low wheels. She scrambled to get out of the way, losing her traction at first, then bounding into the air at the last minute.

The box jerked to stop just before the spot where she'd stood a moment earlier, then jerked back into motion and continued on its way.

"A shuttlebug," Patricia said. "They don't have internal tubelines here in Westwall, so they use the bugs to move stuff around. Computer controlled—that's why it stopped before running you over."

"Awfully close tolerance, if you ask me," Ellen said, dusting herself off where she had landed.

"A miss is as good as a meter," Patricia replied with lame humor.

They continued down the tunnel until they reached a security door labelled, "Residents Only." Ellen had her scomp probe the door's electronic systems and a moment later the door slid aside.

Patricia hung back as she stepped through.

"What are you waiting for?" she asked.

"Couldn't we get in trouble if we go in there?"

"Not likely," she said. "First of all, it's a residential area, so it's low-security. Second, the door's always locked, so anyone

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we see is likely to think we belong here. And third, I'm an Intervenor. I've got immunity."

"I guess so," she said. "I just get nervous about violating security rules."

"Don't feel bad," Ellen said as the door slid behind them. "So did I—once upon a time." She thought back to her days in the Corps of Planetary Engineers when she had been a stickler for rules and discipline. That was years ago, she realized wistfully, long before she'd lost her illusions about the people who made up those security rules.

This place, for example, was sealed off from the rest of the complex for reasons that had little to do with security. It was more a matter of status and privacy—political concerns, not social order. The corridors were more spacious and well-maintained. At the end of a side corridor, Ellen saw a flash of green and yellow that attracted her attention.

It turned out to be a balcony projecting out into an agriplex, open to the air. The sunlight penetrated down this far through skylights a hundred meters overhead and through a leafy canopy of trees and vines. Bright splotches of color from fruit and flowers mingled with the million shades of green and yellow, a welcome relief on the eyes after hours of artificial light in the steel and plastic world behind them.

"This must be really high-rent," Patricia said.

"The same as Ringside units in Pittsburgh—the apartments around the central core where the gardens and public squares were. My family wasn't so lucky—we were assigned to an Outside sector." She recalled the neighborhood of the Breeders with a pang of long-repressed anger.

They lingered at the balcony for a while, as Ellen tried to plumb the depths of the combination garden-farm-forest before her. She could see the iron-beamed structure that supported the agriplex and its glassed-in roof, and here and there she caught a glimpse of the far wall past the rows of cultivated crops. Farther below them she spotted the shimmering surface of water tanks and the fine mist of irrigation and watering machinery.

Then a door opened to the right and a woman stepped out onto the balcony. She gave them a suspicious glance, then walked away towards another exit. It was enough to prompt Ellen to move along, leaving the residential quarter shortly thereafter through another security door.

As they descended deeper and deeper into Westwall, Ellen began to understand the architecture of the place. The structure of the complex was dominated by central service cores—water, electricity, data and communications links, transport lifts, and shuttlebug depots. The tunnels spread out haphazardly from those cores, first through public service and commercial sectors, then into industrial and residential areas.

And she also noticed that the farther down they went, the more cramped and crowded the residential sectors became.

"Grammie Anna, it's me, Patty," Patricia said as she entered the apartment. "I've brought a friend for tea, if that's all right."

"Patty, what a surprise. Come in and have some tea. Grampa Dave and I are having a late supper tonight—there's a block council meeting and you know how he is."

"If you don't show up in person, you might as well stay home," Patricia's great-grandfather said. "They never listen to you if you just phone in. And tonight, they're supposed to go after Al Crnkovich. He's been drilling tunnels without a permit out in West 84 again and they're trying to get him to stop. Damned bureaucrats."

Patricia Claridge's great-grandparents—David and Anna Torrance—were in their nineties, spry and agile in the low lunar gravity, which had treated them gently through the years. Their hair had long ago turned white and their faces and hands were a mass of wrinkles. They lived in a small apartment that offered a bedroom, a parlor, and a small kitchenette—capable of producing a pot of tea, but not much more. They invited Ellen in and talked while the tea was brewing.

She also was delighted to discover that they were a treasure trove of lunar history.

"When we were young, Earth was still three days away from here, you know," Grampa Dave said. "They didn't have gravitron drive ships until..."

"... until Patty's parents were born," Grammie Anna finished.

"Right. That was a big change. More interference from up there."

"Down there, dear."

"It's up there to me," said Grampa Dave. "Just look out a dome sometime. They come down here from Earth and interfere too much."

"Yes, dear."

"You're from up there, aren't you?" he asked Ellen. "Pittsburgh—that's in Pennsylvania, isn't it?"

"That's right," Ellen said.

"They call it East America. Used to be all one America when I was a boy. Before the war. Before the Unification Government up there."

"My parents immigrated here from Ohio just after the Cleveland Strike," Grammie Anna said as she poured tea into cups. Ellen was surprised by the thin china and delicate handles on the cup and suspected they'd been brought up—or down—from Earth.

"Too bad, that," Grampie Dave said. "If the old U.S.A. were still there, we wouldn't have to worry about who was making decisions about our lives. They wouldn't let a bunch of foreign bureaucrats run things down here on Luna."

"I'm sure they wouldn't, dear," Grammie Anna said. "And they wouldn't let the Intervenor come here to stir up trouble either."

"That's for sure," Grampie Dave said. "Those riots were the worst thing that ever happened. Almost killed Joan's youngest son, the red-head..."

"... Timothy, dear. And his young wife. They've got two children of their own now, you know."

"You don't like Intervenor?" Ellen asked, probing gently. She didn't let on, but this was exactly what she'd come for.

Grampa Dave huffed indignantly. "What ever gave you that idea?"

"They don't belong here, that's all," Grammie Anna said. "Oh I'm sure they probably help out on Earth. Life must be very complicated up there and you must need someone to cut through the red tape. But life is different here in Alphonsus. We still have some respect for the old rights, you know. Besides, they are rather undemocratic."

"People back on Earth don't like them much either," Ellen said. "After the War, they helped prevent a lot of problems and they were a lot more popular then. But over the years, I guess they got a bad reputation."

"They've got no respect for due process. No concern for civil rights. They think people work for the government and not the other way around. They're almost as bad as the Brazilians down in Tycho. Too much security, too many rules, too much power. Like the judges and lawyers who get together and cheat people out of what's theirs. Why don't they send an



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Intervenor down there? We lost ten year's credits down in Tycho."

"Only five, dear," his wife corrected.

Patricia's great-grandfather went on to complain about a business deal that went sour with the Brazilian settlement in Tycho more than forty years ago. Ellen was reluctant to steer the conversation back to more recent lunar politics, but by the time she and Patricia left, she was satisfied with what she'd heard.

She smiled as they said goodbye, digesting the conversation as they worked their way back to the main corridors from the residential warren.

"Why didn't you tell me your great-grandparents were separatists?" she asked Patricia when they paused at the edge of a wide plenum chamber.

Her chin dropped, her eyes widened, and she stammered at a reply.

"Relax, Patty," Ellen said. "They were very sweet. And I think their politics are wonderful. But you have to admit they're more openly honest about being separatists than that crank at the tubeline office."

"I just never thought of them in those terms before," Patricia said.

"Don't worry," Ellen said. "I doubt if they had anything to do with sabotaging the tubeline to Scienceville."

Patricia smiled as they headed up a ramp to a higher level.

## FOUR

"What's that sound?" Ellen asked suddenly as a ratcheting buzz echoed up a hallway from a distant quarter.

"Air alarm," Patricia said. "From down there."

Without thinking twice, Ellen headed in the direction of the alarm's source, Patricia hurrying to keep up with her. She was getting the knack of travelling quickly in lunar gravity, though she was a bit unsteady each time her feet hit the floor with the full kinetic energy of more than fifty kilos of mass.

They were in the middle of a residential block, just beyond the central service shaft. The sound was coming from somewhere to the right. They passed a series of dormitories, with berthing quarters visible down side corridors, passed a cafeteria, a laundry, a library, and then entered a section of larger apartments. The buzzers overhead let out their braying alarm, but the halls were filled with people who paid them no mind, some huddled in conversation, moving slowly or not at all.

"What kind of alarm?" Ellen asked.

"An air alarm," the engineer said. "They go off when the air gets away from the nominal parameters—too humid, too hot, too many ionized gases. You're supposed to follow an alarm protocol—clear the corridors, vent compartments, disperse to berthing quarters—that lets the environmental control systems stabilize the situation."

"No one seems too concerned."

"I noticed."

Ellen cast her eyes up and down the corridor and, taking Patricia in tow, pushed on towards a large public commons.

"Here comes a block captain," Patricia said. An older woman with gray hair and a green uniform appeared, chasing people out of the corridors and pushing them towards their rooms. About half of them ignored her. She reminded Ellen of the self-appointed "mayors" who roamed the halls of Pittsburgh and took on the duty of enforcing rules written and unwritten.

"Hello there," Ellen called as the woman entered the commons. "Can you tell me what's going on?"

The woman gave her a quizzical look, ran her eyes up and down Ellen's face and dress, then shrugged.

"They never listen to the alarm, so I don't know why I expect them to listen to me. Every week it goes off. Too many people are cooking in their units. It's green pasta day—the day the farmers bring down their fresh crop. Everyone takes some home and boils it up in their units. They know they're not supposed to be doing that. It overloads the systems and sets off the alarms. What's it to you?"

"I'm an engineer," Ellen said. "I heard the alarm."

"At least someone did," the woman said. "That's a change. They'll be sorry, though. You watch—"

As if to underline the woman's dire warning, a new sound arose, climbing in volume and overwhelming the air alarm with a clanging, chiming beat. The difference in warnings prompted a sudden difference in the behavior of the block's residents.

This alarm they took seriously.

People poured out of compartments and began leaping down the corridors. A voice issued from the ceilings, enunciating the seriousness of the new claxon, warning: "This quadrant is undergoing an acute environmental crisis! All residents must execute Evacuation Plan Bravo immediately!"

"I knew it," the old woman spouted. "I knew we were going to end up with a crisis alarm."

Ellen looked at Patricia, who remained calm despite the chaos around her. The chamber was suddenly empty, and the two of them followed as the old woman headed back the way they'd come. They didn't get far. The corridor ahead of them appeared jammed up in the distance as more and more people poured out of their apartments.

The woman ducked down a side corridor, and Ellen stopped briefly to query her secomp. It suggested a detour that might avoid the crowds, and that led down the side corridor. But it warned her that without real-time security monitors, it couldn't guarantee that the new route wouldn't be blocked.

It was. And before Ellen and Patricia could double back, they were trapped by a sudden surge of evacuees behind them. Men and women with anguished faces hurried towards them as small children flew over their heads, swinging from braces in the corridor ceiling and propelling themselves through the air.

Suddenly Ellen found herself pressed forward into the mass of people ahead of them. The air grew thick and hot and she found it harder and harder to breathe. Alarms buzzed overhead as the environment turned sour.

She wanted to scream. But she knew that panic would spread quickly and turn the discomfort into true danger. She exercised all the self-control she could muster, then reached out and grabbed Patricia's arm.

Patty looked down at Ellen, her normally smooth brow wrinkled with concern. Then she took Ellen's hand and smiled, using her strength to hold back the crowd enough to give them space to breathe.

A moment later, they were pushed forward once again as the entire mass of people moved at once. They were carried along and emptied suddenly into a large utility corridor. The mob spread out and flowed farther along to a corridor junction where there was enough open space to absorb the mass of refugees. People milled around, jabbering with excitement and nervous tension.

"I see a way out of here," Ellen said as the secomp projected an escape route before her eyes, labelling the exit with a bright orange halo.

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"Then lead the way," Patricia said.

In a moment, they were free of the mass of lunarians, in a corridor where a few refugees mixed with a squad of uniformed technicians—"snipes" Patty called them.

"Does that kind of thing happen often?" Ellen asked when they paused to catch their breath.

"It does here in Westwall," Patricia said. "The plant here is pretty antique and it's stretched to the limit. The design is archaic—central service shafts with radial development at random. Not terribly good architecture. Back in Titania, for example, you've got clusters of self-contained units with autonomous power and service systems. Here you've got places that were carved out of solid rock—no sealer, no liner, just raw. That causes another problem—an old miner's ailment they call moon dust lung. The dust gets into their over here and into your lungs. They try to get rid of it, but somehow it keeps getting replenished. They filter about a half ton out of the air every year."

"And the people who have moon dust lung? What about them?"

"Old folks, mostly. They say it's carcinogenic. They can take care of the tumors with a tailored virus, but the main problem is that it scars up your lungs. By the time you get old, you can't breathe nearly as well as us youngsters."

"Sounds terrible. Is this something everyone suffers from or just an unlucky few?"

"Some folks just die young from one thing or another, so I can't tell about them. But in Westwall, just about everyone's got a dusty lung. You may have heard it in my great-grandparents. Even my father still talks with a wheeze."

"So when the air gets thick, it's more than a small problem?"

"When the air handling equipment gets overloaded, it is. But the panic and the escape drill are even worse. That's the problem with an emergency here on the moon."

"What's that?" Ellen asked.

"There's just no running away," Patricia replied. "No matter where you go, there you are."

They didn't find any more separatists in Westwall.

Ellen wasn't surprised. She had hardly expected to run into bands of red-capped revolutionaries running through the halls. She'd been looking for something less overt, but just as obvious—mutterings and complaints, graffiti on the walls, handbills pasted to doors. But there was none of that to be found. Only a generalized attitude of disrespect for authority and disdain for Westwall's neighbors—all of them. There was more native independence among the Westwallers than she'd ever seen before. Certainly Pittsburgh was more restrained. But enough anger or resentment to fuel an unprovoked assault on Scienceville? She hadn't seen it.

Scienceville, on the other hand, was quite a different story.

The public spaces of the settlement seethed with agitated citizens, grumbling and complaining about their plight. Ellen and Patty worked their way through a crowded passageway leading from the moon dog locks to the main commons. Filling the hundred-meter-wide chamber were knots of men and women, gathered around datalink stations, their attention focused on holoscreens above their heads.

She stopped at one to watch a thin man with sandy hair and a narrow blond moustache addressing the residents of the complex.

"—and once again, I'm afraid there is nothing I can tell you to relieve your concerns. There has been no change in the position of the officials in Westwall. And there is no way that

the technical repairs can improve the situation in the immediate future. We are at the mercy of our neighbors and they are not being particularly merciful."

He made a half-hearted attempt at a smile, but it was a wasted effort.

"Nevertheless," he continued, "we have adequate supplies to maintain vital services. No one is in any danger from loss of air, water, or food. The only impact from the boycott being imposed on us is moral and economic. I'm sure that everyone will put up with the sacrifices that this situation has forced with the best of spirits. Thank you and good watch."

Ellen looked at Patricia and narrowed her eyes in a silent query.

"Administrator Seiffert," she replied. "I guess that was his attempt to rally the people."

"From the look of it, he's going to have to try harder." The crowds of viewers across the chamber had turned away from the holoscreens and were exchanging angry remarks. "There seem to be a lot of people with nothing to do but bitch and moan."

"The tubeline's been out for a couple of days now, long enough to put some people out of work. No supplies, no equipment transfers, no specialty materials from Titania in particular. The boycott's forced a lot of projects to go off-line. And on top of that, the daywatch just ended."

Ellen shook her head. She'd lost track of time during the shuffle back and forth from Westwall to the transport terminal at Titania and now up to Scienceville. When she added in the eight-hour trip from Earth, she had no idea what hour it was for her personal biorythms.

She was aware of a growing hunger and realized that it had been several hours since her last meal—a tasteless sandwich shortly before landing on the Moon.

"Let's find someplace to eat and you can tell me what you know about Scienceville," she told Patricia.

They ducked down a side-tunnel and followed their noses to an eatery that was only beginning to fill with patrons. A holosign with the look of homemade lettering advertised the place as "Boris and Natasha's." A grid at the door displayed a brief menu, mostly plain lunar fare consisting of vegetable dishes, pastas, a few items that were blacked out with a notation blaming the boycott, and a message at the bottom touting the restaurant's authentic Old Russian sauces and dressings. Steam issued from the stainless steel kitchen equipment at the rear of the place, separated from the dining room only by a bright red plastic screen decorated with scenes of lunar pioneering rendered in the bold colors and simple lines of socialist realism.

They found a table and the image of a waiter appeared beside them after only the briefest of delays. He spoke with a thin nasal accent that identified him as a native of Lunograd or someplace more distant and equally slavish.

"Would you care for drinks before dinner?" he asked. "We normally have two kinds of vodka, but today I'm afraid we can only offer the ordinary stock and not the imported. We are also serving tea and chickory-blend coffee for the duration."

They declined the vodka, asked for tea, and ordered a pasta dish with fresh vegetables and a red sauce.

"Times are hard for everyone," Patricia said.

"They're likely to get a lot harder before anyone really has to suffer," she replied. "As I understand it, Scienceville is not an industrial producer. And like the administrator said, there's no danger of anyone getting short of breath."

"No—but the science-types have been raising the roof about the boycott interfering with their research. A lot of them



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depend on stuff we ship them from Titania and they haven't been able to get enough moondog flights to make up for their losses."

The young engineer told Ellen what she knew of the settlement.

"The official name is Lunar Research Facility Alphonsus, but no one calls it that. Not except for ceremonial stuff. And maybe a few puffed suits who think they sound more important that way. But they've always had plenty of those in Scienceville. The ones doing unapplied research are the worst. The engineering and applied science guys at least are a little normal. The pure science guys run the place, though. Astronomers, physicists, the nanotech guys. The nanotech guys are the worst—they're so far from reality that they've got no idea how it works."

"Pittsburgh isn't all that different," Ellen said. "We've got a lot of research there. But it's mixed up with everything else."

"Yeah, Scienceville is pretty one-dimensional. Anyone who isn't doing science is here to support them. Even Boris and Natasha," she added, waving an arm towards the kitchen at the rear of the restaurant.

"What about politics? How are they about the separatists?"

"Nasty. Take their natural holier-than-the-rest-of-us attitude and magnify it about a hundred times. Nobody likes them when it comes to that. Not even the people on their side. I think everyone else—the bankers in Mandela and the oldsters in Lunograd and the others who are against it—at least recognize that there's some loyalty to the moon among the separatists. But not them. So I guess no one feels too loyal to them in return. And that's why they're in this mess, isn't it?"

"Sort of," Ellen said. Patricia's impressions confirmed the evaluations she'd scanned before leaving Earth. But it was always good to have someone on the ground back them up. Patty was even reasonably close to the Human Science analysis the service had worked up.

Ellen was about to consult her secomp for notes on that analysis when a commotion in the passageway outside the restaurant caught her attention.

Patricia was out of her seat before her, but they reached the doorway simultaneously. They were just in time to see a crowd of agitated lunarians push past, packed too closely together to move in slow lunar leaps and forced to link arms to keep their balance as they flowed like a single organism.

They swept everyone in the passageway aside and gathered them up.

"Riot?" Patricia asked, looking at Ellen with wide eyes.

"I don't know," she said, a sudden tremor of fear running along her back. "Let's see where they're going."

## FIVE

Patricia Claridge hooked one arm around Ellen's waist and linked the other with a burly, red-bearded man in a technician's smock. Ellen caught her breath as she was carried along with the surging crowd.

All the rules she knew to describe the behavior of crowds rushed through her mind as the one she was in pushed its way down the corridor. The level of anger in a mob like this was related to the nature of the common grievance that spurred the members. The level of violence likely to result was a function of the group's feelings of powerlessness. She wondered how deep and strong that feeling was among the residents of Scienceville.

She hoped it was not deep or strong enough to cause any real trouble. After the Intervention a few years back, this settlement was given political clout equal to its needs and resource allocations that went beyond its needs. That should have reduced any underlying sense of injustice or alienation. Unfortunately, there was no way she could tell for sure until it was too late. Human Science provided strong qualitative analysis, but it was lousy at quantifying such things.

"What's up?" Patricia asked their newfound companion as they turned onto a downward spiralling ramp.

The technician beside them was flushed with emotion and made an inarticulate sound as he grappled with words. "We're going to talk to the administrator," he said at last. "Make him give us some answers that make sense."

"Good idea," Ellen said, nodding seriously, even though she felt exactly the opposite.

"Dirty Westwallers," the technician spat. "They've got mildew on their brains."

Patricia growled in response and Ellen felt a little less worried. If the crowd's anger was directed at their more distant neighbors, they were less likely to do anything to nearby targets of opportunity. Although it was not beyond the realms of possibility for the Scienceville administrators to say or do the wrong thing and shift that anger onto themselves.

A riot in a crowded tunnel on the moon was not a pleasant event to contemplate. The last time it happened, more than six hundred people had died.

"Attention please!" announced a voice from overhead. It seemed to echo up and down the hall. "Attention please! Safe occupancy levels for this area are being exceeded. All personnel are ordered to leave this area as quickly as possible."

The message repeated itself until the growing throng worked its way through the narrowing corridor and into a wide semi-circular atrium. Ellen let herself be carried through the archway and into the chamber where the crowd finally lost its forward momentum and changed from a long, winding serpent into a clotted mass of faces and heads.

She heard another message above the inarticulate babble of the crowd. "Attention please! Environmental control systems cannot accommodate this occupancy level. All personnel are required to leave this compartment immediately."

At least they were still being polite, Ellen thought, although she caught the difference in nuance. She activated her secomp to see if the authorities were working on measures any stronger than computerized announcements.

A quick scan of the chamber showed a number of security monitors installed in the ceiling and actively probing the crowd. The secomp followed those systems back to their source, penetrating the computers that directed them, and copied the data as it flowed into the files. A moment later, it began whispering into Ellen's ear the report being provided to the Scienceville security officers.

"Crowd strength above five hundred. Decibel level indicates highly agitated state. Makeup of sample includes ten percent Rank Two Researchers, thirty percent Rank Three Technicians, thirty percent Rank Four Servicemen, twenty percent Rank Five Laborers, ten percent Rank Six Students. No on-duty personnel detected. Two off-station personnel detected: one engineer from Titania, one unidentified female from unknown—Correction: one engineer from Titania, one engineer from Pittsburgh."

Ellen felt her face grow warm with embarrassment at the obvious reference to her and Patricia. She was also displeased that her secomp had been late in shielding her true identity from

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the security computers, providing them with an identification squib only after they had detected her.

The secomp turned the tables on the security officers now. It tapped into a monitor in the command post and produced a virtual image of a small compartment containing three uniformed officers and a pair of casually dressed civilians. She recognized one of them as Administrator Seiffert.

“Are they safe to talk to?” Seiffert asked.

(One of the officers tilted her head from side to side ambiguously. “Could be,” she said. “Could be they’re not. It’s your call.”)

(The administrator hesitated, then sighed. “Keep a close eye on them and don’t hesitate to use gas. If you have to, you can pull me out afterwards.”)

“Yes, sir,” she said with a salute.)

Ellen severed the connection and powered down the secomp. She grabbed Patricia by the elbow and pulled her along. “Come on,” she said. “Let’s get up front where the action is.”

Seiffert stood in the center of a veranda built of silvery-white moonbricks and decorated by carefully trimmed shrubberies. His sandy hair was in disarray and Ellen noticed a nervous twitch in one eyelid. He confronted the crowd bravely, however, and demanded to know what they were doing here.

“You have been directed to leave,” he warned them. “You are overloading the environmental systems. What is so important that you are all so ready to violate fundamental regulations like this?”

They all had their own answers and they gave them all at once. When the uproar subsided, a few of the loudest members of the crowd faced Seiffert from only a few meters away and repeated their replies.

“We want to know why you’re letting Westwall do this to us.”

“Why can’t you stop them? What about the Common Council?”

“Why won’t you tell us more? You can’t just let the retros in Westwall cut off our transport.”

The administrator was slow to respond. He waited while a chorus of supporters added their voices to the tumult, letting them play themselves out before he spoke up, timing his words to prevent the anger of the leaders from stirring up the crowd.

“I know you’re upset,” he said. Ellen was barely surprised to notice that his voice was being amplified throughout the chamber. “I am too. But there are certain technical facts we can’t get around. It’s going to take a while before they can fix the tubeline. And the line through Westwall only has a limited capacity—most of which they’re using for their own needs.”

That met with a round of shouts and derisive remarks.

“That doesn’t excuse them, I know, but there’s more here than just a matter of politics. Believe me, we are doing everything we can to remedy the situation. As a matter of fact, we’re hoping to do even more. I didn’t want to say so over the video because it might interfere with the process, but I’ve asked for an Intervenor to come up here and settle this crisis. We’re still waiting for a reply.”

That set the crowd off balance. The word echoed throughout the chamber as people repeated it to one another. “An Intervenor...that’ll show them...they can help us...” A few shouts of protest arose, but were quickly hushed.

“I don’t know if there’s anything else you can ask us to do—short of marching across the ridge in spacesuits and knocking on the door at Westwall. If you have any

suggestions, I’m willing to listen to them. Anyone have any ideas?”

The leaders of the crowd looked at one another and then turned to their compatriots. With the responsibility suddenly reversed, everyone looked stunned, then fell silent. Except for one man in the back of the chamber, the red-bearded technician Patricia had linked up with earlier, now perched on a potted plant, who shouted: “Ahh, blow it out the airlock!”

A wave of self-conscious laughter swept over the crowd and Seiffert took advantage of the break in the tension.

“Well, yes, I suppose I could do that, but I’m not sure it would help the situation,” he said. A few people smiled and the rest murmured apologetically. “Now I’m afraid you are going to have to disperse. The environmental systems are really straining to keep the air breathable in here and if you don’t go home, you’re going to find it rather uncomfortable very quickly. Please, leave as carefully and quietly as you can so no one is hurt. Thank you very much for your concern.”

Having reverted from a mob into a public assembly, the lunarians began to turn back the way they had come, filing out in an orderly manner until Ellen could see the far wall of the chamber at last.

“Wait here,” she said to Patricia. Then she busied herself with her secomp for a moment. When she was done, she tugged on Patty’s arm and led her up to the veranda where Seiffert remained, his hand on the doorframe, just one step from a quick retreat.

“Administrator Seiffert,” Ellen said. “We’ve been waiting to talk with you.”

The administrator frowned and sighed. “Not now, I’m afraid. This really isn’t a good time.”

“But we have an appointment. We’re from Titania Engineering. Ellen Brindamour and Patricia Claridge. If you’ll check, you’ll see.”

“An appointment?” Seiffert said incredulously. He looked back through the door at an aide, who disappeared within the offices only to return a moment later nodding vigorously. “Well, all right, for a few minutes then.”

Patricia looked at Ellen with wide eyes, and she said in a whisper that she hoped only Patty could hear: “You go first—and talk fast.”

“You have just been scanned by security probes,” Ellen’s secomp whispered in her ear as they passed through an anteroom on their way into Seiffert’s office. She held her breath as her heart beat faster, then it reported: “Countermeasures continue to function as programmed. Scan did not compromise your cover.”

The administrator bounced across the room, turning in mid-air to land in his chair already facing Ellen and Patricia. He asked them to be seated, which they did, although without the flair that Seiffert had shown.

Patricia followed her instructions superbly, giving a technical report that included everything from the size and mass of the tube wall materials to the cost of shipping the cosmic string boosters up from Munich. She broke down the construction schedule watch-by-watch and detailed the manpower requirements—adding in the limiting factors that prevented them from halving the repair time by doubling the workforce.

Ellen kept quiet, nodding in agreement whenever Patricia looked her way. The monologue gave her a chance to study Seiffert closely. His tic had subsided, but he still looked tired and depressed. She had to give him credit for the way he



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handled the crowd, though. That showed a deft touch that could help keep things from getting out of hand.

Eventually Patricia wound down, however, and ran out of things to say. At last she turned to Ellen and flashed a worried look that seemed to ask for relief. Ellen gave it to her.

"I heard you say a short time ago that you'd asked for an Intervenor," she said. "Is that likely to affect our work?"

Seiffert steepled his hands and put his fingertips to his lips. He looked thoughtful for a moment, then folded his arms. "You're familiar with how an Intervention works, aren't you?"

"By reputation," Ellen said. "I've seen stories on the news."

"Well here in Alphonsus, we've had some direct experience. Ten years ago. For most lunarians, it is not a pleasant memory. I'm sure you harbor no ill feelings towards the Intervenor, Engineer Patricia. After all, Titania was the main beneficiary of their actions. And despite the costs to this settlement, most of us here understand why it was necessary at the time. At least the riots were ended. But others are not nearly so sanguine in their attitudes.

"Most lunarians are rather independent—indeed, that's exactly the problem we have nowadays. Westwall has never made any attempt to hide its separatist leanings or its resentments towards our settlement for holding an opposite view."

He shifted in his chair, leaning forward to put his hands on his desk. In a lower voice, he said: "Some of my staff have suggested that the tubeline break was not an accident at all, but a deliberate act of sabotage aimed at precipitating just this kind of crisis. I have no evidence to support that suggestion, I'm afraid. But it shows you just what kind of suspicions we hold towards one another here on the moon. That's why I'm reluctant to make a lot of noise about our request. It could end up only making things worse—especially if they decided not to honor it."

Ellen nodded and Patricia looked a little baffled. "I understand," she said.

"The politicians in Westwall are a rather sophisticated lot," Seiffert said. "They know how an Intervention works and they're not the least bit intimidated by the possibility. If they don't loosen up and let us get what we need, my judgment is that an Intervenor will step in. Then, to answer your question, there's no way of telling how it might affect your work. Perhaps accelerate it, perhaps bring it to a halt, perhaps no impact at all. But if Westwall and some of the others around Alphonsus are allowed, there's also no way of telling what they might do in response. There are all kinds of things they could do that would turn an Intervention to their own advantage..."

A short while later, Ellen and Patricia Claridge found their way back to the Russian restaurant where they had abandoned their tea more than an hour earlier.

"Where do we go from here?" Patricia asked her as she sweetened a fresh cup with honey.

"I hate to say it, but I think I've gone as far as I can with your help. From here on in, I'm going to have to go on my own."

The young engineer's face grew long. "Are you sure you don't need an escort? This has been a lot more fun than crunching numbers with a design computer."

"I'm sure it has and I appreciate all the help you've given me," Ellen said, reaching out to touch her hand. "But I just figured out how many hours I've been on my feet and all of a sudden I'm ready to collapse. I'm going to spend the night here and go on to Lunograd in a couple of watches."

"Lunograd?"

"The Common Council is meeting next noonwatch. The boycott is on the agenda. I'm too tired to figure out what to do right now, but that's the next step in this process."

"I thought you were just going to tell Westwall to stop and let Scienceville use the tubeline," Patricia said.

Ellen smiled softly. "If only it were that easy," she said.

"Isn't it?"

"No—Seiffert was right. Magda Grant too. I can't just come in here and tell people what to do. Being an Intervenor means you have the power to do that, but you're supposed to use only what power you need—and not a bit more. I'm afraid the situation is terribly complicated. Of course I want to end the boycott—my problem is figuring out how to do it without making things worse."

### SIX

The chambers of the Common Council of Alphonsus resembled all the public buildings Ellen Brindamour had ever seen. The walls were faced with great sheets of polished stone—black lunar rock with specks of silver and grey catching the light from the glass dome overhead. The floors were covered with tiles of white and black—titanium-bearing moonrocks and dark basalt. Stylized symbols of the moon with Alphonsus, Ptolemaeus, and Arzachel craters highlighted marked the spaces between the columns and decorated the wall behind the semicircular table where the Council met.

Ellen found a seat close to the rail that separated the representatives of the six settlements of Crater Alphonsus from the gallery of citizens. She relaxed as the clerks and aides circulated around the chamber, passing messages, distributing old fashioned paper documents, the ceremonial hardcopies that gave those in government a sense of tradition and self-importance.

She had spent the night turning the problem over and over in her mind. There were several ways to approach the task before her. She saw the pitfalls in all of them. She had her own preference on how to proceed, but the behavior of the Council would determine if she could carry out the plan she had in mind.

Until then, she had to be patient...

The Council Chambers were located in the center of Lunograd. Of the four lunar settlements Ellen had seen, it was by far the most comfortable. The scale of construction was grander than that of Titania and the American complexes. Wide tunnels were full of vendors and stalls—the sweet smells of coffee and tea brewing, incenses and oils, ozone and hot insulation—the clatter and clucking sounds of a dozen odd tongues. There was a vibrance and a vitality that Westwall and Scienceville seemed to lack. Where the residents of those settlements were clad in drab outfits of a uniform cut, the people of Lunograd wore brightly colored clothes that declared their ties to a rich cultural past.

She had lingered in the passageways far longer than she'd intended on her way to the Council meeting. Unfortunately, it hadn't made her job any easier.

Only a short time passed before the members of the Council began to file in and take their seats, powering up holographic datagrids at their desks that, theoretically, outlined the agenda before them. Ellen tapped into the computer links and looked over their shoulders—just out of curiosity. There were reports, files, and memos on the issues that the Council was slated to

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discuss. And there were business statements, financial accounts, and other personal items—including a romantic note that left her blushing. She turned her attention elsewhere, cataloging the chamber's security systems, which were many and manifold.

There were eighteen seats at the table, nine on either side of a lectern that rose from its center. At one time, there had been only seven seats at a smaller table. But the last Intervenor to visit Alphonsus had changed that, giving proportional representation to Titania and Lunograd at the expense of the others—in return, of course, for a redistribution of capital and resource allocations to make up for the loss in political clout.

As the members took their places, Ellen's secomp identified each one for her.

There were six from Lunograd, three men and three women, dressed in subdued colors, but rich materials like silk and velvet. Titania provided four members, three women and a man who all shared the bright intensity she had noticed in Patricia Claridge. The three male members from Mandela Town were stiff and proper, their dark skin matched by their charcoal grey suits, hand-tailored and imported at high cost, no doubt, from Johannesburg itself. Crater City's two representatives were quite the opposite—loose and casual, an older man with a pot belly, drooping grey moustache, and a sunhat, accompanied by a very feminine associate wearing shorts and a tight blouse with many pockets. The two men from Westwall could almost be brothers, clad in similar gray uniforms. And from the way the single member from Scienceville squinted and flapped his hands around, he looked like he'd forgotten his lab coat and glasses.

When the entire Council had assembled, the oldest man from the Lunograd delegation, sporting a red silk shirt under a buttonless black jacket, rose and took his place behind the lectern. He lifted a large wooden gavel from the table and tapped it gently.

"The Common Council to order is called!"

Too many men, Ellen decided. No wonder Alphonsus was in such a mess.

It wasn't that they were incapable of making rational decisions. They were just captives of their characters and of historic forces that they didn't recognize. Human Science was clear enough on that.

The old masters of the Science had been right—all human relations were erotic, that is filled with sexual content. But it went beyond that. The whole universe was erotic, all matter in motion, all following trajectories that were either open curves or closed curves. Circles and arrows. Lines and bodies. All Shakespeare reduced to a single scene: "There's a body, here's a line." The feminine forces were the closed curves, the circles, the bodies—unifying, integrating, supporting, nurturing. The masculine forces were the open curves, the arrows, the lines—penetrating, exploring, clashing, competing. The dynamic tensions between the two principles provided the energy that drove history.

Societies tended to reflect the character of the forces dominant at the time, but history recorded the procession of transformations from one set of forces to their opposite—from conflict to reconciliation and on to new conflicts.

The great wars of the 20th century had given way to the bureaucratic and corporate empires that unified the world in the 21st. And the collapse of those empires set the stage for the great wars of the 22nd century, which, in turn, were followed by the Unification Government. When the masculine forces

were in command, male politicians arose whose own emotional dynamics reflected the temper of the times. And it was only natural for women like Madame Chandra and Lilian Tregaskis to become influential when more "feminine" social forces became dominant.

But here in Alphonsus, the political atmosphere was tempered less by the great changes that had swept the Earth in the past generation. It reminded Ellen a little of spoiled schoolboys...

Vitaly Churkin—the old lunarian who chaired the Council—had a style that drew on three hundred years of Russian democratic tradition. His speeches were longwinded and brooked no interruption and his hand was quick with the gavel when he allowed others to speak. Where one of the Americans might be tempted to finesse a vote or slip through an issue, Churkin's method was to bludgeon it into insensibility.

As a consequence, the meeting tended to drag on at times.

But Ellen's interest was drawn to the discussions of the main item on the agenda at this meeting—as she was sure it was at all meetings. And that was resource allocation.

Today, they were deciding what to do with a new surplus from Titania's industrial output. The debate was particularly helpful to Ellen in the way it revealed the current lunarian attitude towards independence and how it translated into their everyday concerns.

"I don't know how much good it will do, but we'd like the Council to once again consider our request for additional support in the expansion project that we've had in the planning stages for most of a year now," said Preston Griswold, the senior member from Westwall. "I realize you've turned us down every time we've brought it up, but I figure you only need to approve it once for us to go ahead."

Churkin gavelled the laughter away and frowned. A member from Titania spoke up in favor of the request. "We'd love to help you add on to the complex, Preston," he said. "But you know that the decision isn't in our hands."

"Nor ours," said Churkin.

Griswold paid no attention to the others, but continued with his remarks. "Wherever the decision is, there's a lot that we could do to relieve some of the crowding we're seeing in the lower residential quarters. There are people who are living at the edge of the system's carrying capacity. It's an old plant. We can't do much with it unless we get some more basic construction resources sent our way—either publicly or privately."

Amos Mugabe, one of the bankers from Mandela Town, responded to that invitation. "We would also be pleased to capitalize an expansion of the Westwall settlement," he said. "But we are limited by investment plans that are written elsewhere—as are we all."

"And much of the resources are already committed to increasing the lab space in our complex," said Jacob Ohl, the Scienceville representative. "Our work is already being disrupted by the tubeline break. Surely no one wants to delay it further by reneging on commitments already made."

"We wouldn't if they were commitments we'd made," Griswold said with a sneer. "But that's the problem. We didn't make those commitments and we don't make those decisions and we didn't draw up the investment plan that Mandela's banks have to follow. We all know who did. And every time that this proposal comes up, we hear the same thing. No one here is responsible. It would be nice if just once, we all stood up together and decided that maybe we are responsible for



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ourselves. We might just discover that if we do the right thing, we will not be hit by a meteorite."

Churkin raised his gavel as a half dozen Council members spoke at once. He gave them a moment to sort themselves out, then banged it down when they did not.

"A motion then to add the request to the list of projects under consideration?" the chairman asked.

"So moved," said Griswold.

"Seconded," said one of the members from Crater City.

"All those in favor raise your hands," Churkin ordered. Four hands went up—two from Westwall and two from Crater City.

"Opposed?"

Up went the others. Churkin banged the gavel and moved on without pause to the official list of projects while Griswold sulked. Most of the items were minor—capital improvements, new ventures, public works—and the Council dealt with them quickly once the squabbling was over with.

Finally, they reached the end of the agenda and the item Ellen had been waiting for—the tubeline break and Westwall's boycott. It wasn't listed that way, of course. The official entry referred only to tubeline service without mentioning a specific settlement or issue. Public business had to be public, but that didn't mean the public had to know what that business was. Ellen, however, had seen the memos that had been exchanged to put the item before the Council.

Her heart beat a little faster as Churkin tapped his gavel softly and slowly announced: "Next item..."

"Mr. Chairman," Griswold said, waving his hand to be recognized before anyone else could speak. "I move we table this matter until the Council receives a detailed technical report on the issues involved. This is a matter of public safety and welfare and we need more information before we can—"

"Is there a second?" Churkin asked before Griswold could finish. One of his associates from Lunograd raised a hand lazily and seconded the motion.

"All in favor?" the chairman asked quickly. Ellen was surprised by the speed with which he had switched gears to a more American mode of parliamentary procedure.

"Mr. Chairman?" Ohl asked, leaping to his feet as hands went up around the table. "Mr. Chairman, a point of order..."

Churkin ignored him, slamming the gavel down and stating: "The motion is carried. A question you had, Councilor Ohl?"

The representative from Scienceville frowned, sighed, then sat down. "Oh, never mind," he said with resignation.

"Is there a motion to adjourn," Churkin asked.

Ellen moved quickly. This was her single opportunity to make a move. She had prepared her message beforehand, now she ordered the secomp to transmit it. Then she waited for the response.

Before anyone else could speak, the member from Lunograd closest to the podium caught Churkin by the sleeve and pointed to his datagrid. Ellen's message had to be there. She held her breath.

"A moment, please," Churkin said. "There is a request for an executive session to add another item on the agenda before we adjourn. A motion do I hear to accept the request?"

"So moved," said his nearest neighbor. It was seconded and a moment later Churkin's gavel fell once more. The members of the Council rose from their seats and filed back to a door at the rear of the chamber.

Ellen jumped up and hurried after them. This was what she had been hoping for. When they turned away from an open discussion of the boycott, she knew she could step in without fear of aggravating the crisis. Now all she had to do was

convince them that they had the power to resolve it in private—and without an official Intervention.

An aide stepped in front of her as she maneuvered for the door, shaking his head and wagging a finger at her. She was not deterred, however, and called out to Churkin.

"Mr. Chairman, if you please," she said. "The request for an executive session was mine."

Churkin looked over his shoulder with surprise, then smiled broadly. "Then come in, please," he said. "A lovely woman like you should not to wait be made."

The private chambers of the Council were smaller, warmer, and much more intimate. While the others sought out seats, Ellen paused a moment to direct her secomp to block the room's security monitors. She didn't want the lunarians to have a record of this meeting.

Churkin guided her to a place in the middle of the long table, then continued on around to his own seat, on the opposite side facing her. The others found their places and when everyone was situated, Churkin raised a hand, bringing a hush over the room.

Ellen swallowed dryly as she realized that the next move was hers.

"Good watch, Council members. My name is Ellen Brindamour and I am an Intervenor."

She glanced around the table at the reaction to that announcement. Relief was evident in Ohl's sudden sigh, but the way the members from Westwall and Crater City squirmed uncomfortably revealed their consternation.

"It should come as no surprise to you all that I am here to stop the boycott Westwall has imposed on Scienceville. I realize you are reluctant to discuss this issue in public—clearly it raises questions that are difficult to answer. But I hoped you might be more forthcoming behind closed doors.

"Councilor Ohl, your people are hard pressed by this situation. Much of your settlement's day-to-day life has come to a halt. I've seen the tension among the residents of Scienceville and I know how close they are to public demonstrations or worse. A few watches ago, I was carried along in a crowd of angry citizens who confronted your administrator over the issue. The only thing that restrained them was the promise that an Intervenor had been asked to settle this crisis."

"Councilor Griswold, Westwall's motives are unclear to me. What purpose is served by denying your neighbors their link to lunar commerce and industry?"

Griswold huffed in surprise at the question. "Why should we do anything to help them?" he shot back. "Look at them. Look at what happened this watch. No one wants to do anything to help Westwall with its problems—least of all the scientists up the ridge. We need resources to modernize our plant, but the lion's share of the allocations continues to go to the settlement with the smallest needs. And we know whose fault that is."

"As you know, Councilor Griswold, the current allocations were meant to redress the loss of political power when the Council was reorganized," Ohl said, his voice rich with pedagogic patrimony.

"By the last Intervenor," Griswold spat out.

Ellen saw the dangerous turn their remarks had taken. She did not want to let them put her in the position of defending the results of the last Intervention. Ohl was already demonstrating the folly of that approach.

"We're not here to debate history," she said. "The point is that the boycott must be lifted. How and under what

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circumstances can still be discussed. I'm willing to be reasonable and I would like to do what's fair—if you leave me room enough."

"Fair?" asked the old man with the sunhat—Brandon Hof, the representative from Crater City. "Since when have you Intervenors ever been fair? Expedient, arbitrary, swift, and unyielding, yes. But fair? You people think you can come up here and rearrange our lives to suit some pseudo-scientific plan you have for society. Well you can't, because there ain't no plan that can take individual cussedness into account. 'Cuz as soon as you think you've come up with one, my plan is to do something else. That's what being human is all about."

Ellen closed her eyes and took a deep breath. Hof was half right. He had vastly oversimplified the role of an Intervenor, but when it came to the impossibility of planning for humanity, he was correct. All that Ellen and the other Intervenors could do was to push things along when they got jammed up and let human nature take its course. Unfortunately, that didn't stop the common—and irrational—belief that Hof and much of the public held about their job.

But this was no place to give a lesson in the limits on the application of Human Science. She let Hof continue without interrupting him.

"That's why some of us want to cut ourselves loose from Earth, from the Unification Government, and from people like you. Your plans and ours ain't the same."

"Right," said Griswold. "We can't manage our own growth without Earth's approval. Our needs must wait until your ends are served. And if we don't like it, Earth sends an Intervenor."

"Is that the truth, Mr. Chairman?" Ellen asked, turning quickly to Vitaly Churkin. "Is Lunograd being held back from helping its neighbors in Westwall by officials on Earth? Your people seem to be everywhere in Alphonsus, practicing a peculiarly Russian brand of free enterprise that in some places would be called a black market."

"Our people are not all separatists," Churkin replied. "But free and proud we are as well. Earth was our mother, is true. But sometimes a mother can love you too much. To answer your question, however, I say no—Earth does not stop us from trading between the settlements as we wish."

Ellen turned next to the bankers from Mandela Town. "Would you really be quick to capitalize Westwall's plans if it weren't for the investment plan? I find it hard to believe you'd be putting your capital into a project that isn't likely to show a return for a generation or more."

Mugabe jutted his jaw forward, frowning, then said: "Money is money. We have no choice but to put it where it works best. To be honest, the investment plan sends more money to Westwall than we would put there on our own."

"And can anyone from Titania tell me if the resource allocation plan drafted on Earth is blocking you from pursuing your hopes and dreams?"

There was only an embarrassed silence in response to that question.

"It seems to me that Earth's influence is more of a convenient excuse for you all to follow your own private interests at the expense of your neighbors than an active interference in your affairs," Ellen said. "Correct me if I am wrong, please."

No one protested, though there was more uncomfortable squirming from some of the Council members.

"It appears that you are indulging in an illusion fostered by the peculiar circumstances of lunar social development," she

continued. "You seem to think that you are all separate little societies. You are not."

"The reality is that there are no separate societies. Humanity is a single species and belongs to a single society. The illusion of separation has historically been the creation of political elites who derive their power from the gap between the underlying material economy and a disorganized political structure. Under those conditions, what you call freedom has seldom been more than another illusion—an illusion designed to pacify those individuals who find themselves outside the system of rewards and benefits of the dominant political elite.

"The irony is that when one of you acts the way you would like to see yourselves act—independently and according to your own conscience—you punish them the way you imagine yourselves to be punished. Is that how you want to be treated? One of the basic rules of Human Science is that internal and external relations are equivalent. Or to put it in simpler terms, do unto others and they will do the same unto you."

"The choice before you now is fairly simple. The boycott will end. How would you have it done? By force from the outside? Or by agreement among yourselves? Oh, what is Scienceville willing to offer in return for help from its neighbors? And Griswold, if Scienceville was to divert some of its resource allocations, would you really use it to clear the foul air in the depths of Westwall? Or would it go to build more garden apartments around your agriplexes?"

## SEVEN

Ellen had three goals when she went into the Council's private chambers—stop the boycott, stall the separatist's and block whatever was on their agenda, and promote the unity of the Alphonsus settlements by reaching a strong consensus.

The Council members formed a consensus on one issue immediately—they didn't like an Intervenor lecturing them on their own shortcomings. They made that clear, interrupting one another to rebut her accusations, deny her assertions, and refute her charges. Even the most conservative of the Russians wagged a finger at her and shook her head disapprovingly.

Only Jacob Ohl of Scienceville remained silent as they fired away at her. He just sat back in his chair, his eyes fixed on the far wall, above the debate and struggle. All this fuss was over him and his people, and he wasn't the least bit disturbed.

She decided she hated Ohl, at least for that moment.

Eventually, the uproar subsided, however, and Churkin stepped in to expand the consensus beyond mutual resentment towards Intervenors. Ellen was relieved to see him work the Council patiently but firmly around to accepting the issue as she had framed it and the only possible solution.

She wasn't pleased with the way the crisis had to be resolved. Scienceville had to make concessions. There was no way around it. The only alternative would be to punish Westwall until they yielded—and that would be a worse offense than the boycott itself. So there had to be an agreement based on mutual sacrifice.

Giving Westwall a reward for being stubborn and willful did not sit well with Ellen's conscience, however. It was good because it ended the boycott and because it could get the support of the Council—but in the end, it would give comfort and support to the separatists in Westwall.

Eventually, however, Churkin slammed down the gavel and silenced the yammering within the chamber.



## Absolute Magnitude

"Is settled," he said. "Scienceville diverts six percent of its resource allocation to Westwall for rebuilding its plant and Westwall agrees to dedicate half its transport capacity to Scienceville for the next month. Agreed?"

There were nods around the table, some reluctant, some spirited. "No vote taken, no record made—is there a motion to adjourn?"

He heard one, slammed down the gavel and the meeting was over. Council members rose quickly and headed for the door. Ellen stayed behind, conscious of the fact that they were all avoiding looking her in the eye. All except Churkin.

The old Russian waited until they were the only two left in the room, then stepped up to her.

"I hope you are satisfied," he said.

"Reasonably. If the boycott is really finished, that's enough."

"On the moon, nothing is really finished. You should learn that. Everything is used again and again—plastics, water, even arguments and ideas. Nothing ever goes away for good."

"I'm afraid you're probably right," Ellen said, shaking off the dark mood he projected. "That's why we have Intervenors."

"I'm afraid you're probably right," Churkin echoed. "But I wish you weren't."

She looked into his wet red eyes and felt swept by self-doubt. For a moment, she wondered if all she had just accomplished was a fraud, papered over by the illusion of

success. She shook her head and banished the uncertainty. She'd done the right thing. The reasonable thing.

Churkin remained seated and excused himself as he activated the data terminal in the table. Ellen backed up, then left the chamber quickly.

She got only as far as the main Council Chamber before one of the aides stopped her. There was a phone call for her—but no one would disturb the Council session and they didn't have data-queue for her in which to leave a message. But the caller was still on the line...

It was Patricia Claridge.

"I can hear you but I can't see you," she said.

"This is some kind of old-fashioned comm-booth," Ellen explained, looking down at a cushioned seat with disdain. "Voice only. No video. What's the matter?"

"I went back out to the tubeline break to see how things were going. I thought I should give you a call when I discovered what we'd found."

"And what was that?"

"The robot drillers that Scienceville told us about. Three of them right along the fault line. And the remains of one that must have blown up or something. They were right. It looks like the quake was deliberate. Somebody sabotaged the Scienceville tubelines."

Ellen's heart sank as she let the soft lunar gravity pull her down into the seat of the comm-booth.



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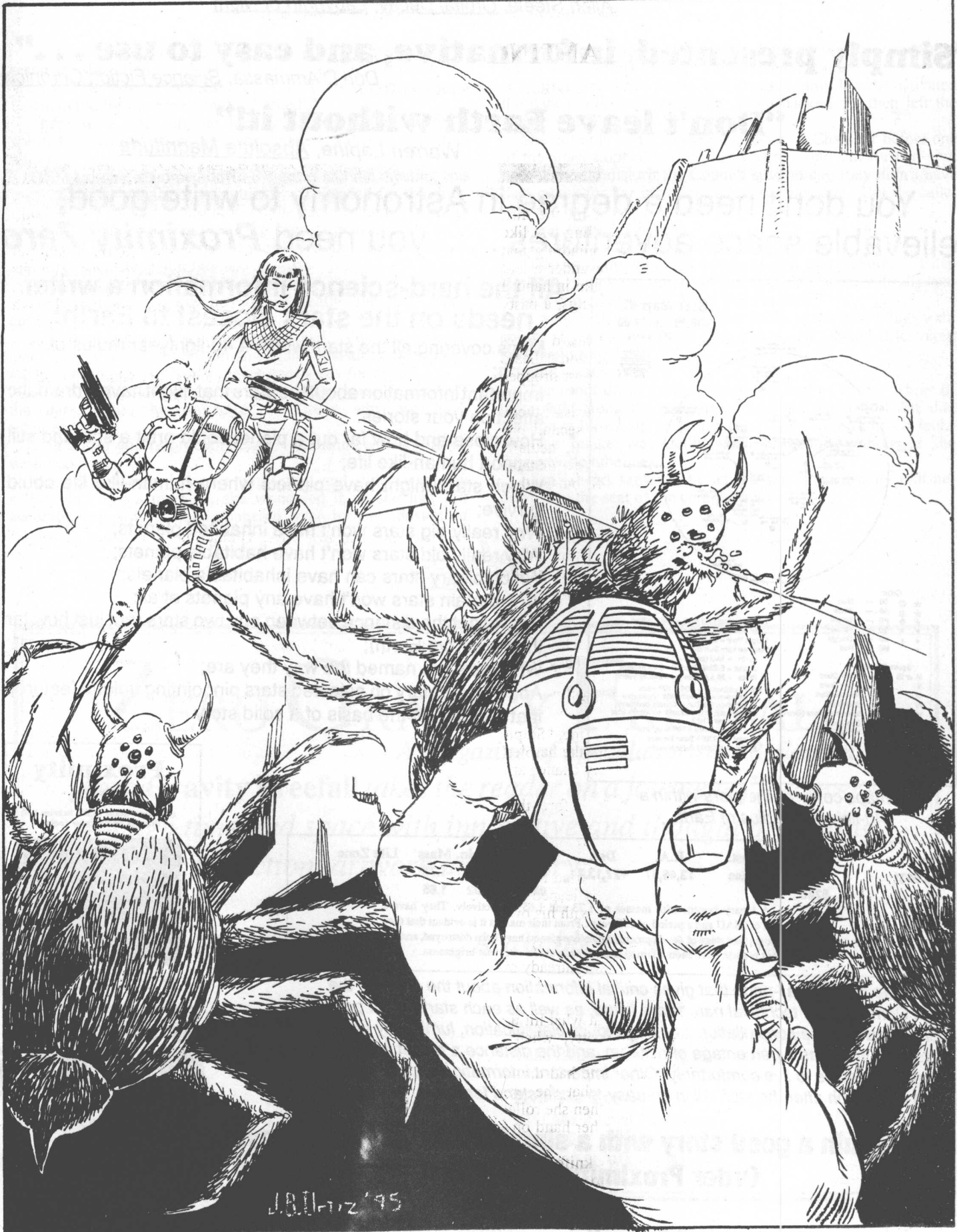
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Linda Tiernan Kepner is the assistant director at the Peterborough New Hampshire Town Library (the oldest public library in the world) and an instructor at Keene State College. She shares her home with her husband Terry, who is also a writer, and an aging-blond Maine Coon named T'Pring. Linda has published non-fiction and made several small press sales, this is her first professional fiction sale

## PLANTING WALNUTS

by Linda Tiernan Kepner

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When I heard the screeing I didn't hesitate. I hit the dirt, diving into the underbrush for a wide leaf and rolling just like Cyntoj had said to do. My foot hit a lump of something that yelped, but I was damned if I was going to hide under a leaf anyway. I was already rolling out the other side, gun in hand. I saw something about two meters away with bat wings, a pasty humanoid face, and blue claws, and I fired.

I wasn't alone. I heard screams of death, but I heard pistols firing, too. Not far to my left, a pistol let loose and I heard Araee yell in fury, "Come on, you bastards!" I almost dropped my gun.

A harpy dived at Araee's little bald head, but it wasn't there. Araee squatted, aimed her pistol, and blam. The second one dived. That little bald tiger launched herself at it, actually knocking it out of the air. And blam. It took her two or three more shots, and a lot of moving, to finish them off, but by then I was busy with some more, myself.

Someone, or something, was also getting its head banged on my far right. Cyntoj had been knocked down by a harpy. His pistol lay in the gritty jungle mud. It hadn't slowed him down a bit. He rolled and kicked, knocking the harpy up into the air. When it bounced back, it bounced its teeth into his fists. Since the harpies were nearly made of stone, it must have hurt him like hell; but I saw teeth flying.

The boyfriends were defending each other's backs. Three harpies were circling them. Eduardo was yelling, "They're not giving up!"

I couldn't fire without hitting them. "Move, dammit!" "We can't!"

I heard a growl from somewhere waist-high near me. "Stupid bastards!" Tiny Araee shot forward, dived beneath the harpies' wings, and tackled one knee of each man. I saw my chance and shot. I got one, but the other harpies turned.

The last word on the subject reached them before they reached me.

A rain of dusty harpy-parts blasted away from me. Mrs. Gonderjhee took aim with the interphase rifle again, blasting away one of the harpies circling Cyntoj. The other tried to take flight, but Cyntoj was having none of it. He literally leaped into the air to bring the harpy down, and finished it off with his own knife.

Again the rifle spoke. Two more harpies died.

A harpy took a dive at Mrs. Gonderjhee, but I was already on target with my own pistol. I was glad to help.

In a moment, the entire clearing was silent.

We were dusting ourselves off, still figuring out what hit us. I looked at Cyntoj, about to say something witty, when I realized he wasn't staring at me.

Mrs. Gonderjhee was sitting on the ground. She had drawn her pocket knife. My heart sank when I saw what she was doing: pulling a ruby-thorn out of her left hand. When she rolled under a leaf at the first alarm, she must have put her hand on a thornbush.

Her right hand trembled when she opened her knife, but by gum, she was doing just what she'd been told to do—cutting

away the poison blister. Blood flowed, but that was more because of the shakes and not the poison.

Cyntoj was right there. Gently, he grasped her hand and put it to his lips. He sucked a mouthful of blood, and spat. The rest of us stood, paralyzed, watching them. He did it again, and spat.

Mrs. Gonderjhee's pretty English face never registered much emotion, but it was plain to see she was scared. She tried to make her voice sound normal. "I think I'm all right. Not even palpitations."

Cyntoj still had her red blood on his lips when he realized they were holding both hands together and gazing in each other's eyes. He backed off so fast it would have been comical if we hadn't all been scared shitless.

"Wipe off your mouth," I said. He reached up and did it. He didn't look me in the eye. What the hell, I thought, that really rattled him, holding her hand! I thought the man was made of stone up to then. I kept my astonishment to myself.

We gathered up the scattered equipment. Araee got out the medikit and stanced Mrs. Gonderjhee's bleeding. Like all Denebians, Araee had a thorough knowledge of nerve endings. Mrs. G.'s wound wouldn't bother her much. While the girls were doing that, the rest of us got the equipment and supplies from the dead bodies and redistributed them.

We'd lost the computer geek and one of the Brazilians. Cyntoj surveyed the damage and announced, "We will not camp here. The smell of blood carries for kilometers. In an hour, this place will be crawling."

"We need to bury or burn the bodies," Mrs. Gonderjhee objected.

"You are not listening to me," Cyntoj contradicted patiently. "This is not Earth." He pointed toward the edge of the jungle clearing.

Something made a rattling sound, scuttled into the clearing, and dived into the Brazilian's body with an audible *thud*. We could hear it crunching its way through the flesh.

"We leave now," Cyntoj said emphatically.

I have to admit I didn't hear him well, because I was already out of there, with Araee and Tyler on my heels. But the rest were no slouches, either.

Cyntoj's voice drifted up from behind. "Watch the trees!"

Tyler swore. I heard him swat something, and turned. He had used his engineer's level as a club, and batted a tree-scorpion to the ground. It had tried to squirt acid into his eyes, and got his cheek.

Compared to what we'd been facing, though, that was almost nothing. Tyler just wiped it off, and kept hiking. So did we. The other Brazilian came up with a machete, and took over the first place in line. We kept our eyes open.

When we had traveled another kilometer, judging by our pedometers, Araee planted another walnut-sized sensor a decimeter deep in the disgusting soil. Since we each had a pouchful of them—now more than ever per person, thanks to the corpses—we took turns. We would have at least one decent line of survey sensors in this filthy place. Occasionally, we stopped and took surface readings.

## Absolute Magnitude

I was becoming more and more impressed with modern surveying equipment. I always thought you needed a clear line of sight, but not with this stuff. Mrs. Gonderjhee and her surveyors knew modern surveying technology, even if they hadn't known much about modern business.

It was hard to tell, in the heat and the erratic lighting, when night actually began to fall. Cyntoj, of course, true to form, looked neither tired nor fresh—just the way he always did. I was OK; so was Araee, but she couldn't surprise me any more. Mrs. Polly Gonderjhee had been running on nerves for weeks, and wasn't stopping now. The rest were beginning to wilt. Most of them were out of shape and out of practice. A month of training from Cyntoj and me hadn't been enough. I was glad we'd left Sam Byner back with the Rustbucket on the coast, though he was going to have a devil of the time convincing the authorities that he was just a harmless tourist waiting for some friends.

I said to Cyntoj, "Night's falling and we'll need to camp soon."

"We are going uphill," the Tyrellian replied. "If this stays true to the geologic forms I know, we should soon reach a ridge. That will offer more safety."

"I'm all for safety," I muttered. "Let's go."

Within a couple more kilometers, Cyntoj found an overgrown cave. Like everything else on Tyrel 3, it was probably full of all the wrong kinds of wildlife. Cyntoj squatted, and growled into the dark opening. It was a natural noise for him—I'd heard other Tyrellians do it under stressful conditions—but the wonder was when something in the cave repeated it back to him. He stood up as if confirming his worst expectations.

"Wolf-spiders," he said, looking at Mrs. Gonderjhee, "but we need that cave."

Mrs. Gonderjhee said nothing. She unslung the interphase rifle, and changed the setting to wide-area. She stepped to the mouth of the cave, and gave it a good dose. I thought to myself, And this is the woman who hated to swat flies three weeks ago. I'd been wondering if I could even deal with a bunch of bleeding-heart civilians again.

She must have known exactly what I was thinking. She commented, "I am all in favor of preserving endangered species, Mr. Brannon. In Hellforest, that's *us*." Even Chico, the Brazilian, grinned.

Thanks to her, that cave was as clean as a whistle. Even the wolf-shit had evaporated. The boyfriends heated some rocks with a chem-pack, Cyntoj found water somewhere, and Tyler made tea. Our food came out of packets we were carrying. Cyntoj reappeared with dessert, some kind of fruit looking roughly like watermelon.

"Stop hovering," I said, "you're making me nervous. Sit."

Cyntoj sat down beside me. "Nervous, Brannon? You? I doubt it highly." The way he could chaff me showed how much time he'd spent among humans.

"I can recognize sarcasm when I hear it. How do you want to split the duty?"

"Four off, four on. Pick a buddy." Despite the parsecs between our birthplaces, we'd both picked up military shorthand over the years.

"I'd rather pick two."

"Sound," he agreed. "Eduardo and Brad?"

The boyfriends. "Sure, good enough."

"I shall take Chico and Tyler, then." Between us, we had picked the only men who looked like they'd be any good in a surprise scrap. I went off and told the Brazilian and the

CenCom guy what they'd just volunteered for. They were not thrilled.

Neither was Araee, who overheard me. She faced me off at the door. She stared up at me from her three-foot height and asked in a demanding chirp, "Don't you want *me* on duty?"

I grinned, and touched the top of the little bald head. "Yes. But if I choose many more, there's going to be more people outside than in. Besides, with you in here, I don't have to worry about internal security. You're an appalling little girl, do you realize that?"

She was appeased. "So long as you mean that. But watch out, John Brannon!"

"I will, sweetheart. You get some sleep."

"I will."

We headed out to our posts outside the cave entrance. It was uneventful, though we jumped at every movement of the brush. Once a howler bat let loose overhead, and once we heard more harpies scream. I saw a vein of silver, and knew that none of the creatures with sensitive electrical systems would bother us. After four hours, we headed back inside. Only a few men, and Araee, were sleeping. The others were wide awake.

Cyntoj and his detachment stood, and went outside without a word. I sat down, and thought back on how I got into this mess. I had no one to blame but myself.

The office of Gonderjhee & Co. wasn't listed on the space station directory. Somehow, I'd expected that. If I was going to work for a shady operation, it might as well start this way.

Not seeing them listed brought back my original opinion of people who'd hire someone like me. I was 3B—bad record, blacklisted, and broke. I admit that Sam Byner, who I met at the bar, had seemed all private-business. But hell, Consolidated Confederation Central Intelligence could look like Boy Scouts when they wanted to.

I pushed the button outside Room A439 (no label) and the door slid open. It looked like just the sort of one-room racket I expected. There was a tiny desk with a broad sitting at it, some boxes scattered about. It looked like someone just arrived or was packing up fast. I inclined toward the latter.

I revised my opinion the moment the brunette looked up at me. It was her eyes. With her short-cut hair and the grey eyes, she wasn't just any bimbo. I was willing to let her look me over—after all, I'm human too—but she just locked eyes with me. Her voice was dead calm. "You have the wrong office, sir."

"I don't think so. Sam sent me."

Her eyes flickered in surprise. Still no sign of anything close to a smile. With one hand, she motioned toward the only other seat in the room. I sat down on it. "Your name?" she inquired.

"John Brannon. How long will I have to wait?"

"Wait?" she repeated. A very slight furrow of puzzlement appeared between her eyebrows. "What did Sam tell you about the company?"

"If you don't mind—why don't I discuss that with the boss?" I suggested.

"Humor me, please." It was a polite order, but it was indeed an order.

I really didn't care if this blew my chances at a job. "He said it was some bandage surveying company in receivership. Close enough?"

"Sam Byner never said that."

"Not quite in those words," I admitted. If she was the secretary, then this was some outfit. She was in her twenties, and had a classy accent, maybe English. She was wearing comfortable clothes. Most secretaries wear ass-high



## Planting Walnuts

skirts, low-cut fronts, and superspike heels. "That's what you see, once you scrape the paint off."

Her lips tightened for a moment. Her voice was very gentle and entirely different. "I'm afraid you're absolutely right."

"Of course I'm right," I said sternly, "and I came to tell your boss so. If the best they can do is cruise the bars, looking for thugs, they deserve to get their teeth kicked in."

"Oh, no. Admiral Kikken recommended you."

I stared at her. I had saved Kikken's life once, a fact not for publication. We'd spent a day in a deep freeze together, at least until Fleet HQ restored the environmental system knocked out by a very large bomb.

"Kikken's an admiral now?"

"Yes. I went to school with Rez Kikken, his wife. Saint Demeter's Station, and then Oxford. By the way, I am Mrs. Mary Ann Gonderjhee."

Of course she was.

"Rez and Kik have been kind enough to grubstake me and lend me a mothball floater. It's the *S.S. Ridstock*—commonly called the *S.S. Rustbucket*, I believe—but beggars can't be choosers. When I have the money, the exterior will say Gonderjhee & Company, but right now I'm buying nothing that I can't eat, burn, or put to work." The eye she gave me was an invitation to put myself in one of those three categories.

"How desperate do you think I am?" I protested.

"Not very." She pulled a folder out of a packing box, and set it on the table. "You're capable, competent, healthy, and young. Kik says you've just had a run of bad luck."

"Did he tell you what my bad luck was?"

"No—" She cut me off by holding up an imperious hand—"and I don't want to know. Mr. Brannon, you have a choice about this, but I don't. For what I need to do, I cannot hire choirboys. Have you ever heard of Confederation Joint Services?"

"Just in passing," I answered. "When I was in the Fleet, we used CJS files if we didn't have our own info in the regular military files. The CJS filing system is a nuisance and the info is almost always screwy or incomplete."

"Do you know why?"

I shrugged. "Because they're a civilian outfit."

"That is incorrect, Mr. Brannon." She didn't argue; she merely stated a fact. "Confederation Joint Service is a government agency. Like many governments on various planets, including Earth, members propose more scientific projects than available military and government scientists can accomplish. The less desirable, less urgent projects end up in a pool, in the hope that a private contractor may bid on them. CJS manages that pool. They accept government proposals, and negotiate private contracts for them. Then they publish the results, and funnel the information to agencies which may need it."

"I stand corrected. Are they very successful?"

"Surprisingly, yes, despite your personal experience. There is a wealth of good information available in CJS databanks. Consider, Mr. Brannon. If the ConFed Fleet had no information on an area, the area must be dangerous or facing other prohibitions. For you to retrieve any data at all must be close to a miracle."

"Uh, oh," I said.

She confirmed my worst fears. "The longer a project sits on their books, or the more dangerous or crucial it becomes, the more they are willing to pay. The oldest, most dangerous project on their books is a survey on Tyrel 3."

"Oh, cripes." I even cleaned up my language for her. "The only difference between Tyrellians themselves and their wildlife is that the wildlife chew you up before they eat you alive."

"It is a physically dangerous job in a politically unstable area," she agreed. That was a masterpiece of understatement. "From their Hellforest city, the Tyrellian Empire has obliterated almost every other race on the planet. They've done everything to the other Tyrel continents that they could imagine, from radioactive dusting to plowing salt into the soil. The only surviving races live on the Empire's own continent, Hellforest, and war with them constantly."

"The Korgorite Nation wouldn't mind dealing with us, but the Tyrellians don't give a crap what outsiders think," I argued, "and the Tyrellians control Tyrel 3. What do they care about surveys? The ConFed is *not* welcome."

"They are members of the Confederation. Their First Contact was over 500 years ago, twice as long as Sol's First Contact. Whether it was a whim, or curiosity, Heaven knows, but they joined. Later Empresses found that the ConFed had firmly-established rules about membership, which did *not* include the right to change your mind. They are members under duress, at the moment. They are being forced to pay dues they do not wish to pay."

"They have grudgingly allowed the ConFed to establish three Fleet bases on the opposite side of the world. The radiation has barely died down enough to permit the Confederation's most radiation-resistant races to work there. Now they must register a survey of the native-inhabited portions of the planet. Tyrel 3 has discouraged this. They don't want any detailed maps of the route to their capital city to exist. They don't intend to give in gracefully to the ConFed or to each other. They're all still at war. The mapping must be as unobtrusive as possible."

"Run an unmanned probe over it."

"Mr. Brannon," she chided.

"All right, I know better. The Tyrellian Empire or the Korgorite Nation would blow it to bits. So drop in a shuttle!"

"That won't work, either. The only guaranteed method is to land on the east coast of Hellforest and walk in."

I stared. "Do you have any idea what a risk that is?"

"That's why I wanted you, or someone like you. I don't know how to survive under such conditions. I need training, and proper help. You have the experience. In addition, you can pilot a ship. You know about engines. Compared to the rest of my company, you're an expert."

"I'm not a surveyor."

"I am a surveyor," Mrs. Gonderjhee stated. "Leave that to me. Are you on?"

"How's your credit?"

"My credit is bad, but not dreadful. This company is not in receivership. I'm straight with Inland Revenue—what you call, in America, Internal Revenue Service. However, I pay in scrip and I don't sign much."

I saw a coat and a pack of old-fashioned surveying tools over in a corner, and thought to myself: She's sleeping here, too. "Fine by me. Cash makes no enemies." My good sense said to me, Brannon, what are you *doing*? "Let me look over the Rustbucket—um, I mean the *Ridstock*—and get some idea of her condition." I stood up, too.

She almost smiled. "Are you so shocked that Kik recommended you?"

"Well, I need work, so I guess I should capitalize on my references. Three hundred a month and found?"

## Absolute Magnitude

She shook her head. "Two hundred."  
"Split at two-fifty?"

She held out her hand. "Deal. Due to my religion, I'm a vegetarian, but any time there's anything on the cookfire you're welcome to it. I won't complain if you buy and cook meat, but I'll give you your own dinnerware to put it on."

I shook the hand. It was rough from work. "Deal, lady. Where will I stay until we take off? On the *Ridstock*?"

"If you don't mind."

"Not at all. It'll feel more like home."

I left. I was calling myself a jerk for accepting an impossible job that was going to get me killed. For no reason. For almost no money.

But I'd be on a ship again.

I signed on, and slept on the *Rustbucket*—I mean, *Ridstock*—that night. The following morning, it was as black with my eyes open as it had been with them shut. It took me a minute to remember I was in a spaceship bunk. Then I wondered what woke me, until the buzzer growled again. In the mornings, I do not shine.

I hit the shell release, and the bunk wall popped open. I crawled upright into the light.

"Oh, good," said a bright soprano chirp, "you're awake."

I sat upright on the bunk, blinking, trying to clear the fuzz out of my eyes and my brain. I *thought* I was looking at a completely bald little girl, hardly more than a meter tall. She was looking back. I saw the shiny ear-jewelry, all the way to the points of the little ears.

She handed me a cup of coffee. I took a sip. Compared to the sludge I had been drinking, it tasted mighty good. "Not only are you beautiful," I said, "you are kind and intelligent."

"I like him, Sam," she pronounced. "We'll keep him." Sam Byner was leaning against another bunk, grinning.

The coffee was helping. She was no little girl, not with those pointy little breasts. "What's a Denebian doing in this mess?"

"I'm a surveyor," she chirped.

I eyed her. "Really?"

"Well, journeyman surveyor." She pulled the cup out of my hands before I could protest, refilled it, and put it back in my hands. A truly intelligent girl. "Now, you wake up and go powder your nose, and then I'll help you recalibrate the equipment you made notes on yesterday. I'm good at math."

"All Denebians are."

"I'm especially good. You'll see." She patted my shoulder and left the sleeping compartment.

"Where in the universe did you dig *her* up?" I asked Sam.

The plump man chuckled. "Pretty good, eh? And she can make any calculator blush with shame, believe me."

"Yes, but can she dodge Tyrellian vampire bats? That's the question."

His smile faded. "I don't know. I don't know if you can, either." He was serious and sensible. "Let's tackle what we *can* handle first, and work our way toward the impossible."

"Sounds fine to me. Lemme wash up. Any chances on getting breakfast around here?"

"Parathas, fresh fruit, and curried eggs."

"Parathas?"

"Bread. Wait till you taste."

I washed up, shaved, and dressed. Then I walked down to the galley with Sam. Along the way, I asked him, "How'd you hook up with Mrs. Gonderjhee, Sam?"

The middle-aged man smiled ruefully. "I didn't. I was office manager for R. Gonderjhee, Surveyor."

"So you got screwed, too?"

"Yep. Me and Polly Gonderjhee held the office against seventeen big, ugly surveyors with bouncing credit vouchers. We pulled strings and punched buttons we didn't even know we had. Little Araee had just come in as an intern. She thought this was the most wonderful education in the world, learning how to handle financial crises. Faith, she was right on that."

I grinned. "What happened to Gonderjhee?"

"I wish I knew. I'd take a chunk out of him myself. Polly hates talking about herself, as you may have noticed. She has her pride. She says she was wild to be off Earth when she was young. Since she came from a sensible, respectable family, she chose a sensible, respectable escape method. She didn't run away and join the Fleet, as I suspect you did." He had me there. "Polly trained as a surveyor, against her family's wishes. She always specialized in computer work, desk jobs. She met Ravi Gonderjhee at one of the stations where she worked. They married. They even went to India for the family's blessing, and she converted to his religion. She was living an exotic, romantic life." He shook her head. "They started a business out here, with an office on Kamarand Station. We had seventeen good surveyors working for us, plus an office staff and students—not a small operation."

Of course. Even I had seen "R. Gonderjhee, Surveyor" ads, somewhere ages ago.

"She woke up one morning and it was gone."

"What happened?"

"She doesn't know. Kamarand Century Realty was sticking an auction sign on their front door, and no sign of Ravi. As Polly says, law out here is strange; it lacks the four human virtues of mercy, pity, peace and love. We barely escaped being sold into 'indenture' ourselves."

"Aren't Kamarands sweet?" I commented.

"I got us a job re-mapping an Orionese estate. I *had* to get her out in the field. You could see the peace on her face while we worked—that's what surveying's all about. When we returned with the payment, K-Law took it. They canceled the indenture proposal and gave us free passage off the station."

"Did they take your equipment?"

"Oh, absolutely. Don't think her decisions are rash. She's desperate for money, and must take desperate measures."

"Couldn't she go to India?"

"Sure, and marry a cousin or a brother. She couldn't bring herself to do it. They don't have divorces, either, but there is an annulment process. She may be working on it, I don't know, but I understand it takes years."

"So Polly got left holding the bag."

"So *Mrs. Gonderjhee*," he corrected, reminding me that "Polly" is a very intimate nickname for Mary, "got left holding the bag. She's damned if she does and damned if she doesn't, so she's slogging forward the best she can."

In the galley, Mrs. Gonderjhee was supervising two young human males, whom I placed in their correct category just by looking at them. Especially when one of them giggled and play-punched the other.

"Don't comment," Sam murmured warningly behind me. "It'll cost you." I kept my mouth shut.

Parathas were bread, all right. They were good bread. Ekuri were good eggs. I ate better than I had in some time. While I ate, I met my new shipmates.

Besides Mrs. Gonderjhee, Sam, and the little Denebian, there were two Brazilians, the boyfriends, and a goofball who was hung up on computers the way other men were hung up on women. There was an ex-accountant from the Central



## Planting Walnuts

Committee Accounting Office, and two guys who had been rejected by the Fleet for minor medical reasons. Mrs. Gonderjhee and Sam had them firmly under control. Obviously we weren't a quality outfit, but Mrs. G. had shown some sense in her choices. The Erazilians had been jungle miners. Despite their giggling, the boyfriends had the marks of two leather-and-studs punks who knew their way around a brawl. The Fleet rejects only had one bent knee and one bad thumb between them. I figured that even I could teach the computer geek how to handle a pistol. All of them looked like read-and-writes, so if they couldn't survey they could at least be trained to hold the equipment and take notes.

Araee perched next to me and chirped, "Well, where would you like to start with the ship?" That started us off. Mrs. Gonderjhee made it plain that the ship was today's project, I was in charge, and everyone was expected to do what I told them regarding it. We discussed it, and went to work.

When we broke for lunch, the Rustbucket was already looking like a working ship. I told Mrs. Gonderjhee so, in private, before we went in to eat. "She'll do," I said. "She'll be smooth as silk."

"It heartens me to hear that."

It occurred to me that this kid needed a lot of heartening these days. I patted her shoulder—nothing sexy about it—and said, "If we have any trouble, it won't be because this ship failed us."

She didn't reply. I wondered if maybe I was wrong to touch. Or maybe it all seemed still too overwhelming. She was still young, and here I was, thirty-eight if I was a day. I had a right to be this tired. She didn't deserve it.

I bought bonding paint for the exterior, and a bonding unit. The ship needed the extra protection, and the registration number had faded, which was illegal. Out of my own pocket, I bought a little red and a little gold bonding paint. I hunted up Sam and told him my idea. He was more than glad to help.

"Mrs. Gonderjhee, could you come outside for a minute?"

She stopped reorganizing her new office and looked at us curiously.

The expression on her face was a wonder as she looked up at the red-and-gold lettering. **GONDERJHEE & CO.** stretched across either side of the ship, in Araee's best commercial lettering.

The computer geek said admiringly, "My God, we look like a real business."

A low, very quiet male voice from behind made us all turn from our admiration of the signs. "Ah. Then this is the correct ship. I wish to speak to Mrs. Gonderjhee."

One look at him and I knew we were signing into a whole heap of trouble. He was nearly two meters tall, dark-haired and dark-eyed, muscular, and severe-looking. He had blue-tinged skin, but he was in typical civilian clothing, a little worn.

Sam muttered, "A Tyrellian, straight off the vine," but I think only I heard him.

"I am Mrs. Gonderjhee." She stepped forward.

He inclined his head slightly—the equivalent of a bow. "You were recommended to me. I need work."

"Come to the office. Sam." She also glanced at me. "Mr. Brannon." She led the way to what might have been the ship's day-room in more military times. She and Sam took the only two seats. I have to say I didn't mind. She had already caught on to the idea that, with a Tyrellian, the military way is the guaranteed safest form of etiquette.

"What can you do?"

"I have worked on ships. I am good with technology. I can fight, and I can survey." A direct answer to a direct question, the Tyrellian way. And not one flicker of emotion, which would have been bad form.

"Have you a pilot's license?"

"It is not current. It expired eight days ago."

"Is it just a question of paying the fees?"

"No. My name also changed. I would rather retest from the start, under a completely new name, than go through the paperwork of changing it."

"Who recommended me?"

"I prefer not to say. I wish you to hire me on my own merit rather than your opinion of another." He had his nerve, this guy; but then, all Tyrellians had nerve. That's why they had such a successful kingdom.

"Did your source give you any idea what my project is?"

"Approximately. Contract CJS-963, Confederation survey of the region of Tyrel 3 in dispute between the predominant Tyrellian Empire and the Korgorite Nation, to map natural resources and general survey. The project has been on the CJS rejected proposal list for fifty-seven years." He was still absolutely deadpan.

"One of the disputing kingdoms is your home."

"It is my birthplace but not my home. I am politically neutral." I thought I detected the slightest hesitation in his voice when he said that. "It was suggested that my knowledge of Hellforest and my technical expertise might be of use to you."

"And you need a place to live," she guessed.

The same quick nod. "Yes."

"Your name?"

Sometimes my instinct kicks in, at the damndest moments. I knew what he was going to say, just before he said it.

"My name is Cyntoj."

I stared at him, but I kept my trap shut.

"Please wait outside the compartment," she said evenly.

He nodded again, and walked out.

After the door shut behind him, Polly Gonderjhee spoke to me. Her tone was as dead as his. "You know him."

I weighed the options. I could say no, I could give her half an answer, but—after all, I was working for her now. Assuming she paid. "His name is Captain Cyntoj Smantek. He was an instructor for Combined Fleet Academy, before he disappeared."

Sam frowned. "I should know the name."

"Damn straight you should. Fifth Fleet."

"That's Jackson."

"Admiral Jackson commands the entire Fifth Fleet. Captain Smantek was in charge of the *Eridana*, the flagship. Between the two of them, they could eat a nova for lunch with a dark star for a chaser." I shook my head. "When Smantek put in his time, instead of retiring back to Tyrel 3, he went to Combined Fleet Academy to teach. Then, one day, he vanished. It was a nine days' wonder."

Sam was trying to remember. "I *do* think I heard something about it. But I don't think I ever heard the end of the story."

"Maybe there wasn't one."

Mrs. Gonderjhee hadn't spoken since she'd observed that I knew him. She was thinking. I have a theory that the less a person blinks, the harder he or she is thinking. Mrs. G wasn't wasting any blinks. When she stirred, it was almost startling. "He looks tired."

"What do you think?" Sam asked her. A smile was coming to his lips, so it was easy to guess what he expected. And he knew her better than I did.

## Absolute Magnitude

"Call him back in."

He came in. His jacket was over his shoulder. He had his gripsack in his hand. Plainly he expected to hear her say Thank you but no thank you. His eyes met hers squarely nonetheless.

Mrs. Gonderjhee didn't waste time. I was beginning to like that quality more and more. "I can only give you what I have myself, Cyntoj. You'll have a place to sleep, and food. You'll get paid when I get paid. Two-fifty a month. Profit-sharing if there's any profit. Found is vegetarian. If you want meat, you'll have to buy it and cook it yourself, like Mr. Brannon here."

"I am not particular." No, he didn't sound particular; just dead tired. She had noticed it, and I hadn't. Now, with the prospect of a place to stay, Cyntoj let the mask slip a little.

"Then this is your place, and welcome. First, I want you to eat and drink something. Then I expect you to sleep and get acclimated for at least twenty-four hours. You and Mr. Byner will figure out where you'll work best." They were marching orders.

I still think Cyntoj was surprised that she asked him to stay. A new look came into his eyes, as if he felt this was something he could deal with.

She turned to Sam. "Fix up a contract to that effect, name as Cyntoj and payment in scrip." She turned to Cyntoj. "Yes?"

"Yes."

"Mr. Byner will show you to your bunk."

Cyntoj nodded as slightly as Mrs. Gonderjhee smiled. But I knew he was as solid as if he'd just held up his right hand and sworn the Fleet Oath of Honor.

Sam and Cyntoj left. There I was, alone with the boss, and I couldn't think of anything to say. It lasted a full minute. Then I figured I'd better open my mouth. "For all you know, there could be warrants out for him on fifty planets."

She shook her head. "Not likely."

"True enough."

"Besides, I don't inquire into police records. We'll be between systems most of the time anyway." She gathered up her notes, apparently unaware that she'd just dropped a bomb on me. I *knew*, right then, she knew I was only one step ahead of the law—and that was one of the reasons she hired me.

"Space law ends at the starliner hatch," I muttered, realizing that it applied as much to her, and to Cyntoj, as it did to me.

Something screamed, mighty damned close to the cave mouth. I realized I'd fallen asleep. I rolled over with my pistol in my hand. Every other living soul in the cave was doing the same.

"What the hell was *that*?" gasped Eduardo.

"Tyrellian vampire-bat, I think," Araee contributed.

There was another scream. It felt like the creature was standing right beside me. I'd heard there was a sonar, or maybe even telepathic, element in their sound. They used it for confounding their prey.

"Brad, what are you doing?" Eduardo exclaimed.

The other boyfriend was moving toward the cave entrance. "I'm going to make sure the sentries are all right." He sounded feverish.

"You're going to stay right where you are," I ordered, "with your pistol trained on the cave mouth in case something tries to get in. And you're *not* going to shoot until you make damn sure what it is entering the cave!"

Brad gave me an unprintable reply, and kept going. I heard the *snick* of Mrs. Gonderjhee's rifle adjusting to narrow beam. "Brad," she warned, authoritatively—

All we heard was the roar that drowned out his screams. Something big and hairy, with six or eight legs, hurled itself from the ledge near the cave mouth.

Mrs. Gonderjhee shot. She shot again. The shaggy creature roared, and turned from the body toward the cave. We could see glaring eyes and dripping fangs. Every firearm in the place hit it in chorus, including Mrs. Gonderjhee's.

Tyler's voice rose from outside the cave, "Don't shoot! It's us!"

The three sentries reappeared. Cyntoj looked mussed up. He glanced at Brad's body, but said nothing. He simply heaved it over his shoulder and took off with it. We understood. Before the animals started arriving.

Araee opened up the medicine kit, and took out something which she poured over the bloody entrance. "This will mask the smell," she said.

"What happened?" I asked Tyler.

"Vampire-bat. They're sensitive, you know, so we just slammed it against that open vein of silver out there until it electrocuted itself."

"Brad."

We turned to regard Eduardo. He was in shock.

"Eduardo, snap out of it," I said.

"What was it?" he asked slowly.

"As my guess, the mate of the wolf-spider we destroyed to get this cave. It was waiting outside, in case one of us should step out alone during the night." I took a breath. "And Brad stepped out."

"That is my guess also." Cyntoj reappeared, rubbing his hands together.

Araee was squatting beside Eduardo. She was examining him carefully. "He is in shock. Cyntoj. Can you help him?"

"No, I cannot."

"Don't be silly," Araee scolded. "You're probably trained in emergency first aid for a hundred races."

Cyntoj shook his head. "My retention has faded to nothing. I simply do not remember. I cannot use those skills."

That was the first time I had heard him put the problem into words. Over the first few weeks of training, I had learned he was good for the short haul, but he couldn't even be depended on to get a full night's sleep. Mrs. G. had found that he'd lost two jobs by losing interest in them, and failing to show up for work. His attention span was faulty, his memory shaky; if he hadn't been Tyrellian, I would have called it severe depression.

Chico caught hold of Eduardo, and dragged him over to the warmth. He started talking in Portuguese. I imagine Eduardo didn't understand a word of it, but it was soothing. Pretty soon he lay down on his blanket, at least.

Cyntoj and his sentries went back outside.

Eduardo was functioning pretty smoothly by morning. Like I said, those boys were tough.

We were on our seventh day in from the coast. Despite the deaths, events were going pretty much according to plan. Heland—the "Hellforest" was actually just a pun—had no spaceports, so the easiest way for us to land was to pancake on the ocean and drift to a dock in some small town. We had done so. The village only had about 300 people, and they didn't give a damn about us as long as we paid our docking fees. We did. Cyntoj selected this village because it was isolated, but he hadn't shown his face during the negotiations. I thought it was to reinforce the belief that we were tourists, which only shows how wrong I can be.



# Planting Walnuts

We worked our way up the river valley, toward the Empire city, away from the sea. We hoped to reach Tyrel City itself, although even space surveys had never showed its exact location. Cyntoj said Tyrel City had defense tricks that the ConFed couldn't understand. We would get within sight of the city walls, that was all. Entering would be far too dangerous. It would take three or four weeks to get there, and just as long back.

The first few days, we planted sensors and saw some of the smaller wildlife, like the tree scorpions. The lands looked slightly tended and slightly cleared, but we never saw people. Cyntoj told us the Korgorite armies obliterated several villages in this area at one time. The Tyrellians had returned the favor. It was not a popular place to live.

Our only goal was to get a line or two of sensors planted, each a decimeter deep and a kilometer or so apart, to provide a link to Sam and the ship. Their progress told Sam that we were still alive and kicking—although, of course, we had no way of knowing the same about him. The "electronic walnuts," as we called them, used very little energy, so as not to delude either kingdom into thinking they'd discovered a "spy net." Altogether, they would act as a grid wherever we planted them, announcing their relative height above Sam on the coast—that is, above sea level—and announcing any interesting electrochemical activity in their vicinity, such as metallic deposits or water. We were reinforcing Sam's readings with topographical surveying and the evidence of our own eyes and recorders. If some snoop, or wild animal, dug up a walnut, it would unravel only a very small part of the grid.

It also meant that, the further we went in the jungle, the more we had to split up to plant walnuts. Fortunately, when Mrs. Gonderjhee agreed to take on the contract, she had strictly limited their expectations in order for her to get paid. We only had a few important river valleys and hills that we *had* to do. The project focus was the main route between the city and the sea, its landmarks and its natural resources. The rest was extra. Mrs. G and Sam got quite a few contract concessions in view of all the technology that couldn't be used in this case. Anything large, like a satellite, would be considered espionage and shot down by the governments; anything small, like a one-man ultralight, would be considered edible and digested by the wildlife. It didn't leave a lot of options.

As we spread out, we stayed in clumps of two or three, or made sure someone was always within visible or voice range. Cyntoj's safety lectures, held in the comfort of the Rustbucket, now seemed very, very relevant.

I had Neb off to one side, within speaking distance, and Araee off to the other, when we heard a vicious, growling snort. Then we heard hoofbeats, and Cyntoj's voice: "**CLIMB A TREE!**"

We tore across a clearing to a giant kapok tree, or something like it, just ahead of us. Araee grabbed my arm and I threw her into a low branch. Neb and I grabbed for handholds and started climbing, full packs and all. Adrenaline is wonderful.

Neb swore. I heard buzzing. From her perch on a tree branch, Araee fired past my shoulder to barrage the bees' nest. It fell. There were still a few bees, which we swatted. "I hate bees," Neb growled.

"Allergic?"

"No. I just hate 'em." He swatted the back of his neck.

A great crashing sound drew our attention back to the ground. It was a wild boar—mad, and somewhere near the size of an Earth rhinoceros. It looked up toward the tree toward us, and bellowed.

"Oh, plurge droppings," said Araee, "it can hear the walnuts."

"What? Are you sure?" Neb pulled out a walnut, and twisted it to skew the frequency. The crazed beast gave another roar and slammed headfirst into our tree.

I grabbed Neb just in time to keep him from falling off the branch. Our tree was pretty sturdy, but I didn't think it could take very many more charges like that. This behemoth weighed over a thousand kilograms if it weighed a gram.

It backed up, roared, and charged the tree again. It vibrated. We heard wood crack.

"Mrs. G's not going to be able to drop *that* with her rifle," Araee said worriedly.

My backpack crackled. I jumped. Then my pack started to talk. It took me a moment to realize that Cyntoj had modified one of the surveying devices to make my bag of walnuts talk, as a unit! It was a Tyrellian quick-fix technological trick, their specialty. It sure beat stepping into the clearing to yell.

"*Brannon—you've got to climb farther up. There's a roc's nest there.*"

"Dammit, you told us to avoid them!"

There was another *slam*, and a crack. The tree tilted.

Cyntoj couldn't hear me. "*Quickly, while the parent is away from the nest. Drop the egg on the beast!*"

Talk about biological warfare. Why not? I turned and gripped the tree branches, and started to climb.

I grabbed hold at another *slam*. The tree tilted further. Another meter—I could see the nest, and a bright gold egg. But those branches couldn't hold my weight.

Araee's hand grabbed my ankle. She had followed me. "My job!" She climbed over me as if I were part of the tree, and out onto the branch.

*Slam!* I grabbed Araee's legs as she wrapped herself around the branch. Below, down to my left, I heard Neb saying, "Shit! Will you guys come on?"

Araee strained. Her little fingers barely touched the egg. She shimmied out a little further. "I've almost got it. I've got it. Oh, oh—I can feel something moving inside—"

"Swell—it's calling to its parent. Pass me the egg—"

"Will you pass me the *EGG* down here, dammit!?"

An unearthly call echoed across the skies while we played Hot Potato. I caught the egg from Araee and tossed it to Neb. He took a moment to position himself, and dropped it right on the boar's head. A naked fledgling flopped across the boar's back, still in its goo.

For a moment, I thought a spaceship whizzed by, close enough to touch. Then I realized it might as well have been. It was the roc parent, after the destroyer of its egg. I couldn't imagine a thousand-kilogram wild boar yelping, but this one did. The roc picked it up in its claws as if it were a sausage, and vanished in a flurry of red, gold, and blue.

Carefully, we worked our way back to the ground. The rest of the team was there to greet us. "I'm still shakin'," Neb said, holding out his hands. "Let's get out of here."

"I second the motion." I looked down at Araee. Her eyes were shining. It was plain that this excitement was bread and meat to her.

I turned to Neb just in time to see his eyes roll up into his head as he dropped to his knees, then to the ground.

"What's happening?" exclaimed Mrs. G.

"I can guess." I dropped to the ground beside him and loosened his collar. "Shock. He's allergic to Tyrellian bee-stings. We need antitoxin, quick."

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"I'm looking, I'm looking." Tyler shuffled through the medikit, triumphantly holding up the syringe.

Neb shuddered once more, and died.

I expected to hurt all over, and I didn't. Apparently my adrenaline kicked in at exactly the right moment, and just long enough, to prevent me from feeling any ill-effects from climbing a tree in full pack.

Araee was far more subdued. She had been higher than a kite from excitement in the tree, and completely unprepared for Neb's reaction. Tyler had to snag the medikit from her because she was too high to help. It hurt her Denebian pride, and I could sympathize.

Cyntoj was also subdued, but I didn't have the heart to ask him what was wrong. He had done some quick communicating, but he had failed in the weapons department and in the life-saving department. 2 to 1 was a bad score for a Tyrellian. Mrs. Gonderjhee was giving him thoughtful looks, too. I had a bad feeling that she'd inquired for his references after all, and discovered he wasn't coming through.

To add to our joy, Thomsen developed a skin fungus. Thomsen's illness was disastrous, because he was a licensed surveyor. Mrs. Gonderjhee and Sam were, too, of course, and Cyntoj had the ability but no license, so he and Araee were journeymen. The dead computer geek had been licensed; so were Tyler (the CenCom man) and Thomsen. The rest of us were goons.

Thomsen kept up the pace, supported by drugs and salves from the medikit, but he was weakening.

We were paralleling the river. It was hot, humid, and had crocodiles the size of submarine boats. We got our drinking water from side pools with tiny streams and plenty of birds nearby, to limit the possibility of a neighboring caiman. Then we got the hell out of there. We had the equipment to purify any water, but not to make it. Every time I went to the river, I knew what a wildebeest felt like.

We slept in caves whenever we could find them, but we pulled out the tents a couple of nights. They slept six, which meant we only needed two of them now. None of us cared if our tentmates were male, female, alien, or chimpanzee. We were too exhausted to care, and there was safety in numbers. Even so, there was something pleasant about the evenings. I liked listening to Chico singing, or Mrs. Gonderjhee asking somebody questions about their lives or their opinions. She was good at getting other people to talk. I suppose it got her mind off her own problems.

To celebrate two weeks out, we found a really nice cave to sleep in. The caves were getting to be mighty reliable. During the night we heard vampire bats and wolf-spiders nearby. It was so routine it almost wasn't worth mentioning.

There was more combat inside the cave than out. When we got set for the night and went to take night duty, my team said nothing doing. Eduardo and Joshua rebelled at taking another four-hour shift. They insisted that everyone should be taking turns.

This was why I hated civilians in all their forms. (This was also why I was in so much trouble on Orion.) I told them it wasn't a matter of what they wanted, it was a matter of what we needed. They flatly refused.

Mrs. Gonderjhee watched quietly. She exasperated me, too. "You want to do night duty?" I asked her at last.

"No," she answered, "not in the least. Interesting. I didn't think you'd even ask a woman, Mr. Brannon." Despite her words, while she spoke, she lifted her rifle to her shoulder to

accompany me. I gathered that she had grown up in a sporting English family and was quite comfortable with the rifle.

The cave exploded in protest. Only Cyntoj and Araee were silent. "Mrs. Gonderjhee! You can't do sentry duty!"

"Why not?"

Joshua started, "If anything happened to you..."

"...you'd be up a creek? Is that what you're saying? Then you had better decide right now if this is a democracy or if I am in charge. If this is a democracy, then we all take turns at everything, good and bad. If an essential person gets killed, you'll just have to cope. If I am in charge—and I was under the illusion that I am—then I make the decisions, using advice from the persons I deem appropriate, and we stop all this wretched debating." She set the rifle down, butt-end first. Her voice was still calm and firm. "Now. Who is in charge?"

Silence.

"I want to hear voices—every single person here."

I took a breath. "You are."

"I am what?"

"You are in charge, *ma'am*." I knew how to answer an officer.

"That's better. Mr. Estes."

"You are," said Joshua, after the same pause.

Around she went, naming names. I could hear pauses and breaths, but the answer was always the same. Mrs. Gonderjhee was in charge.

"Ms. par-Araee."

"You're in charge, Mrs. Gonderjhee."

"Mr. Cyntoj."

"You are in charge, *ma'am*." Same school.

"Then it is unanimous. Mr. Brannon. Why have you continually picked Eduardo and Joshua to pull duty with you?"

"Instinct, I guess, *ma'am*. My feeling is that they have what it takes. Some people are natural sentries."

"Then, gentlemen, you're on duty with Mr. Brannon. I trust his judgment in this matter. I'm sure you will be able to work together. If you can't, I'll know the reason why."

I'd never had a civilian, certainly not a woman, ever say she trusted my judgment quite like that. I didn't realize how much it stunned me until I almost sat on a fire-ant pile outside.

We went two days without losing a soul.

I didn't realize we were being shot at until Joshua's brains splattered all over the tree-trunk beside me.

When you're in the Fleet, new and green, that makes you stop and stare. Me, I was already heading for the nearest leafy underbrush.

I rolled, and thudded against a leg the size of a tree trunk. I looked up at what I figured would be my last look, and saw what I expected to see: Knee-high cloth boots, bare legs covered with silvery scales, a cloth tunic, leather armbands and chest protector, a silver-scaly reptilian face. A Korgorite footsoldier. When he growled and showed his sharp teeth and lifted his lance, all I thought was: Good-bye.

I kicked up a leg, right toward his genitals, on principle. That alone wouldn't have done it; but a rock the size of my head hit him in the face the same instant. He was down, and I was on my feet.

I wasn't needed, even though there were eight of them and only one growling Tyrellian with a sling in his hand. He had their full attention. I'd never seen anything like it.

In a voice I'd never heard, Cyntoj growled, "Who else?"

They were frozen. I'd heard the effect Tyrellians had on Korgorites was roughly the same as a cobra in a lot of hamsters,



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but I'd always thought it was folklore. And yet, they were paralyzed, outnumbering him 8 to 1.

I got out my pistol and made sure he saw it. I noticed that no one else was in sight.

One Korgorite moved toward him—his last mistake. There was a *SNAP* of the sling (I realized it was normally his belt) and the Korgorite fell as if he'd been pole-axed. Even at close distance, that belt was a deadly weapon. It was being wielded by an expert.

Cyntoj looked them over. In that icy, paralyzing voice, he said, "These are all soldiers. There is a captain somewhere."

I moved back a step, planning to look for him. A voice on the opposite side of the clearing—behind Cyntoj—saved me the trouble. "He's right here, don't worry. You make an excellent target, Tyrellian."

Calmly, Cyntoj answered the invisible Korgorite. "Don't you think my own marksman will trace your shot? Think before you fire." The soldiers were recovering quickly, and tossing hostile little glances at me.

"That?" A note of contempt—meaning me.

"No. The others. Do you think I'm here alone?"

Pause. "I know you're not. There's only one reason a Tyrellian would be here. But with humans?"

Cyntoj's voice returned to normal. "You speak remarkably good Universal Basic, Captain. I don't suppose you worked on one of the Tyrel Fleet bases."

"Turn slowly," the voice said. Cyntoj obeyed. The voice said, "By God." That was a human expression, not Tyrel 3.

A large Korgorite commander stepped out from the trees, interphase rifle in hand.

"By God," he repeated. "The Dead Man."

Cyntoj acknowledged the apparent recognition, and returned it. "Garkin—, isn't it? You were a communications officer on Tyrel Fleet Base 3, as I recall."

"As I recall, I was a slave of the Tyrellian commander of Tyrel Fleet Base 3."

"I stand corrected."

The teeth parted slightly. Korgorites couldn't blink, but his eyes narrowed. "And you were a visiting Fleet officer from the great outside universe. I remember. Shimtek gave you hell for speaking to Korgorites as equals."

"It is a bad habit I picked up from Outside."

The yellow slit-eyes took in the casualties. "You killed two of my soldiers."

"You killed one of my friends, and injured another." (I had the sense to limp when I stepped forward.)

"You are in Korgorite territory."

"So I am."

The Captain blinked. "You admit it? But yes, where else should you be? Why do you have humans with you?"

"To survive."

"Where do you camp?"

Cyntoj pointed east. "Two ridges over, in some wolf-spider caves." We had camped there last night, and we were long gone. "I have no ambitions but reading and meditation now."

The Captain thought about this for a moment. "So you say." He thought again, and made a decision. "I will report your presence, but you may remain in this area."

"You are unusually kind."

"Oh, it is not kindness." He barked an order in his native tongue, and his squad came to attention. "It is—initiative. And, perhaps, remembrance."

No one came out of the shrubbery until the Korgorites were definitely long gone. The first to appear was Araee, pistol at

ready, and then Mrs. Gonderjhee, rifle in firing position. "What do you suppose he meant by initiative?" Mrs. Gonderjhee asked.

"I do not know," Cyntoj answered, "and I see no point in wasting effort, guessing."

"C'mon," I said, "we've got to get out of here. The wildlife's arriving."

Little did I know how true that was.

I circled around the area I'd been working, puzzled. A moment ago, I could see Araee off in the distance; now I couldn't. I was moving to the spot where Thomsen ought to be. I didn't see him, either.

Cyntoj stepped out of the foliage, a puzzled frown on his face.

"You seen Araee or Thomsen?"

"No. Have you seen Chico or Eduardo?"

"No."

We found Thomsen, looking for Tyler, and Eduardo, looking for Mrs. Gonderjhee. "Couldn't be animals," I said, puzzled. "Someone would've screamed. Mrs. G would have taken a chunk out of them, for sure."

Cyntoj's frown had cleared, but the expression wasn't pleasant. "It is a special animal, all right," he said thoughtfully, "traveling in scout parties."

"Shit. Which kingdom, yours or theirs?"

"Tyrellian or Korgorite," he corrected me. Even back on the ship, he had made a point of being excluded from both kingdoms. "I do not know, but I am about to find out. Are you on?"

"I'm on."

Thomsen, scratching madly, said, "I'd better stay here."

I turned to Eduardo. "Stay with Thomsen and the gear—excuse me. *Would you please* stay with Thomsen and the gear?"

Eduardo flashed me a quick grin and nodded.

Cyntoj slid on ahead of me, as smooth and dark and quiet as a panther. I went slower, to stay quiet.

He stopped at a small patch of open ground and dropped to one knee. He waited for me to catch up. I looked at the footprint in the mud. It looked humanoid. Two horizontal bars were most prominent—the crossbars of a Tyrellian hinged clog, standard issue. Cyntoj didn't wear them. I glanced ahead a bit, and saw something. In a low voice, I said, "Scrap from Tyler's jacket."

Cyntoj nodded, rose, and padded along with me.

We didn't go much further before we found Chico's body. The eyes bulged horribly, and the wildlife was already at work on it. We passed by quickly.

Cyntoj's face was grim. His lips pressed close to my ear. "I am not certain they are scouts. Some Tyrellians were exiled here. They are far more dangerous."

I nodded. Mere scouts might kill someone without questioning, but Tyrellian exiles would have nothing to lose, either. The Kingdom was the be-all and end-all for Tyrellians, which was why Cyntoj's attitude was so remarkably un-Tyrellian. The tone in Cyntoj's voice, too, indicated that you had to be mighty bad to get yourself exiled to Hellforest.

We cast around, looking for more clues. Through the leaves, some distance off, I saw Cyntoj's hand raise. He found a piece of Maine pinegum—Tyler chewed it. It occurred to me that Tyler was very much on the ball, for a guy who claimed to be an excessed Central Commission accountant.

## Absolute Magnitude

We could both see their progress through the underbrush, though I'm sure Cyntoj's sharp eyes saw far more than mine. The signs told us that they weren't hiding—they just hadn't expected company.

Among the topics we'd discussed during the training period was what our cover story would be if we got stopped by Tyrellian or Korgorite forces, so I knew that part of the problem was taken care of. However, Chico's dead body suggested there might be unconsidered problems with that line.

Cyntoj crouched. I did the same. We crept up to the edge of a man-made clearing. It was a compound, rather than a camp. The buildings were wood, with stone lintels and supports. Tyrellians never used canvas or wood if stone was available. They built for life. It told me, plain as day, that some Tyrellian was calling this place home.

I saw the banner at about the same time Cyntoj did, in front of the largest cabin. Up highest, of course, was a lion, symbol of the Tyrellian Empire. (Even exiles still considered themselves Tyrellian—like an Irishman is always an Irishman.) Below the lion banner was something that looked like a stylized jaguar. We moved back into the forest.

"Here's how it stands," Cyntoj whispered. "That is the Sedek clan. My bet is that it's leaderless, since most of their females have been executed recently."

"Wonderful. Does that improve Araee's and Polly's chances?"

"I hope so. Do you think the rest of the team can cope without us until evening?"

"I hope so. What are we going to do?"

"If they have stuck to the surveying-school story, we should be able to stage an escape that looks like students helping students. They won't bother chasing them if they have a far more serious problem on their hands, obviously unconnected with their chance meeting with these students."

"What's the more serious problem?"

"Me."

He wasn't kidding. We each had a pretty good idea of how the other thought by now. I took one look at his face and knew this was a piece of unfinished business.

There was no point in arguing unless I had a better idea. I didn't. "Okay," I sighed. "Lay it out for me."

He sketched his ideas for me, but had barely begun to elaborate on them when we heard a scream. It was a full, high-pitched scream with a lot of body to it. A man's scream always has more tone and sincerity than a woman's. He tapped my shoulder twice ("Let's move"), and we worked our way around the edges of the compound. Cyntoj knew where he was going. I gathered that this was a typically-styled camp.

The compound was much smaller than I'd thought. There were only five main buildings, and a couple of storage sheds. On the side nearest a rock-faced waterfall, they had built an open plaza, as if they had great plans. Perhaps twenty Tyrellian men were there. Hanging by his wrists from a gibbet was Tyler. They had already started taking off some of his skin and a few fingers and toes.

A very unpleasant-looking, dark Tyrellian occupied the largest chair in the clearing. I saw Araee and Mrs. Gonderjhee, hands tied behind them, sitting on a bench, watching.

The leader spoke in Universal because Tyler was obviously human. "Now. You won't last long at this rate. Why are you here?"

"I told you the truth!" Mrs. Gonderjhee said. Despite the horror she must have felt, Mrs. G sounded like she was in full control. "This is a class exercise, nothing else!"

"You are spies."

"Nonsense." She even sounded firm. "Our records are public information. Contact the Confederation computer system. Tyrel 3 has full access."

"We have no access." His voice was harsh. Something was wrong. All Tyrellians had a high level of computer access. This gang had really been ripped out by the roots.

I wasn't keen on watching Tyler get tortured any more. I was ready to move when they went at Tyler again, but Cyntoj tapped my arm once. I turned to stare at him. He was saying no! What was wrong with him?

Cyntoj stayed still. He watched the scene intently.

I tend to act before I think, and now I settled down (making sure, first, I wasn't on a fire-ant pile). Cyntoj had seen something I hadn't, and I needed to catch up. What was it? Why was Tyler worth torturing?

The obvious answer was that he was keeping something back. The torture was unsophisticated, for Tyrellians. Technologically speaking, they were wizards. This was one of the many reasons why they were so valuable in military work—they could make weapons out of anything, on the spur of the moment, using their imagination and the most unlikely-looking equipment. They didn't need to futz around, taking a guy apart joint by joint like this.

They had sensed Tyler was lying. They were in bad moods. They got their tails kicked, Tyler was not Tyrellian, and they didn't give a damn. They just wanted to make someone suffer.

I remembered the CenCom man making some comment about being more use to Sam than to us. At the time, I thought it was cold feet. Apparently Cyntoj interpreted it differently. He suspected Tyler of skullduggery, and was waiting to see what his brother Tyrellians could dig up.

But I wasn't prepared for what I heard. Apparently, neither was Mrs. Gonderjhee. She generally didn't react strongly, but this time I saw her stare. "You're from *what*?"

The seated Tyrellian cocked an eyebrow at Tyler, still hanging from the ropes. "She did not hear you. You had best repeat it," he suggested.

"The Internal Revenue Service," Tyler mumbled.

Mrs. G sounded genuinely puzzled. "Inland Revenue? But *why*?"

It was a reasonable question, but Tyler did not respond. I felt like stepping out and offering to help with the red-hot pokers, because I could guess.

Bit by bit, they dragged it out of him. The Confederation Internal Revenue Service didn't believe that Mrs. Gonderjhee and Sam had no idea of Ravi Gonderjhee's whereabouts. Tyler had been assigned their case, to keep tabs on them until they met Ravi for their share of the loot. Then he would call in the Confederation marshals to arrest them all.

Polly Gonderjhee's face went completely white. A woman has never looked at me like that, but if one does, I'll make damn sure my will is in order.

"Inland Revenue is chasing *me*?" If her hands had been free, I think she would have taken the hot poker to him herself.

In her typical fashion of saying what other people merely thought, Araee, too, found her voice. "Tyler—you *scumbag*!"

I had never seen a Tyrellian break form before, but I saw Cyntoj's lips twitch. The seated Tyrellian actually broke into a quick grin.

"Little one," he said, in his very good Universal Basic, "you appear shocked. Is this human such a good mistress?"

"She's not my mistress, she's my boss. She's been trying to keep this business afloat ever since her man robbed her, and



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this—this—” Words failed her, and she changed topics. “And you’re not any better, treating us like this! The way you act, you might as well be human!”

That was a gross insult, but the Tyrellian took it well. “Perhaps we are at cross purposes, then. You said your name was—Mrs. Gonderjhee?”

“That is my name.”

“And these others?” No answer. He continued, “We can be civil enough to trade names, at least. Your Denebian associate is correct on that point. My name is Kyren Sedek. These men are all that remain of my clan and family—hence we fled the city. It appears that our fortunes run in similar fashion, Mrs. Gonderjhee.”

“I haven’t murdered anyone in cold blood.”

He waved it away. “...Yet. If you find you must, you must. We live in a violent universe.” He motioned to the guards, who removed ropes from their prisoners. He gave a command in Tyrellian—which I don’t speak—and Araee’s guards motioned her off politely toward one of the cabins.

Kyren Sedek stood. “I would speak with you. Come, eat and drink with me.”

Araee piped up, “Tyrellian seduction knows no bounds.”

Mrs. Gonderjhee said quietly, “Araee, go with them.”

“But, Polly!”

“Go! You’re my safety.”

Araee nodded, biting her lip.

We slid back to whispering distance.

“Point one,” I said, “is that I don’t speak the lingo.”

“That’s all right. You won’t need to.”

“What’s Mrs. Gonderjhee doing?”

“Buying time for us to find her. She’s not a fool.” Cyntoj stared thoughtfully at a leaf. *He* wasn’t blinking much either. “She comprehended that they want the women’s goodwill.”

“Uh-oh. Because Tyrel 3 needs women.”

“This camp does, at least. Despite her humanness, Mrs. Gonderjhee displays some striking Tyrellian female qualities.” I thought of some of the tough, straight-from-the-shoulder Tyrellian businesswomen I’d met, and had a pretty good idea what he meant. “Unlike humans, Tyrellian men are physiologically dependent upon their women.”

“A hormone thing?” I asked, in lieu of a complicated question.

“Yes,” he replied, in lieu of a complicated answer.

“So Kyren Sedek is hurting.”

“Kyren Sedek is going to learn what hurting is all about,” Cyntoj answered grimly.

We went back to the cave to discuss strategy. Nobody else liked Cyntoj’s suggestion much better than I did, although they all had different reasons. Freakin’ democracies.

Thomsen was most vocal about it. He didn’t like me anyway. The feeling was mutual. “You went off and left Mrs. Gonderjhee with a bunch of Tyrellians, and tell us *you’ll* save her? Didn’t you even talk to them? You’re going to go in with weapons and you don’t even know if they’ll listen to reason!”

“This group will not listen to reason, not the way you mean it,” Cyntoj replied quietly. While the rest of us were arguing, Cyntoj was almost ignoring us, playing with things in his hands: some walnuts, connections, micro-tools, and a bit of wire. His hands flew faster than a good seamstress, constructing something potent out of the harmless little walnuts with their tiny built-in power supplies. Talking to us, his eyes on his work, he was retro-wiring transmitters, paring down cores, re-aligning switch strips. His communications act during

the roc incident had only been a warm-up phase. This was Tyrellian field-stripping at its best.

Thomsen scratched himself (his fungus was worse) and barked, “All we have is your word on that, and as near as I can tell, you’re no better yourself!”

“Thomsen,” I said, “shut up.”

He spun on me. “Who the hell put you in charge? You aren’t a licensed surveyor. Neither is this Tyrellian. You’re a scrub pilot. You just march in here, both of you, and say, okay, everyone follow me because I say so. You have no idea what’s going on, and you obviously don’t give a damn. We need to work this out and either talk to these Tyrellians, or reach a consensus on what to do.”

He was what I hated most in civilians: all talk and no action unless I’m in charge, let’s reason with crazies, guns are always bad and soldiers are worse. I felt my back-hair rising as I opened my mouth.

Cyntoj touched my shoulder and stopped me. His voice was as calm and patient as before. “You are correct, Mr. Thomsen. You deserve some answers and explanations. First, about myself. I am a respected Tyrellian citizen. These people are not. I know, because I was instrumental in their exile from the Kingdom. If need be—if we had time—I could place proof of their atrocities before you. But we do not have the time. And, unfortunately, in a court of Tyrellian law, the words of Kyren Sedek would be given precedence over mine.”

“Because you’re no better than him!” Thomsen snapped.

“No. Because I am dead, and he is not,” Cyntoj replied calmly.

We all stared.

“In revenge for foiling their crimes, the Sedek clan took steps against me. It is rather like, in your cultures, being taboo, or legally dead. In the Tyrel empire, I am a non-person. I have no rights. No Tyrellian may speak to me or notice me.” He smiled that strange little smile I was beginning to hate. “I am—the *late* Captain Cyntoj Smantek of the Confederation Fleet, dead with honor.”

“The Dead Man,” I muttered.

Brief nod. “The Dead Man. I am dead—ruined—useless to anyone for over two years now, and it shows. I’m sure you’ve noticed. It is naturally expected that I will die of the ostracism. Second, the women are not in mortal danger. The Tyrellian Empire is a matriarchy. Whether or not they become someone’s wives, the women serve as a focus point for the men. They are safe.”

Eduardo had enough of talking. He was cleaning the blade of his big knife. He never wasted time making decisions. “Okay, I’m with you.”

I cut short any more debate by turning away from the group. “Let’s go.”

“Macho man,” I heard Thomsen mutter.

“Merely impolitic,” said Cyntoj. I shot a quick, suspicious glance at him. I swear his eyes twinkled. “Brannon is more at home with the Fleet, and it shows.” I glared at him.

I was crawling through the grass with a knife in my hand, concentrating on avoiding fire-ant piles and critters dropping off leaves, before it occurred to me that Cyntoj was perfectly right.

When it comes to demoralizing the enemy, Tyrellians wrote the book. Nonetheless, I thought that Cyntoj was exaggerating how much his mere presence would disrupt the camp. I knew he had a grudge, and I knew he was taboo. But I also knew that Tyrellians were fierce and vicious fighters. We were also

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moving in daylight, because it would be easier for us humans to maneuver. If Cyntoj had some kind of edge, it couldn't be much.

From my vantage point at the edge of the compound, I bided my time, waiting for my cue.

Cyntoj appeared at the main square and came down on the whole bunch like a ton of rough ore. From there on, he had exactly the same effect as a porcupine in a nudist camp. He knocked two sentries unconscious immediately. Someone else nearby saw him, aimed a gun, realized he'd screw himself for taking notice of a dead man if he shot, and lowered the gun. By then he'd got a rock alongside the head that put out his lights. Cyntoj was a hallucination with one helluva mean sling.

That scene was repeated at least eight times. From my end, I could hear the sound of panic in the streets. It was mighty obvious even though I didn't know the lingo.

Cyntoj strode toward the central firepit, where items had been heated to toast Tyler not so long ago. Tyler's eyes flickered when he saw Cyntoj, but he didn't speak. Cyntoj shot one of his newly-adjusted walnuts toward Kyren Sedek's cabin.

I swear the wooden cabin didn't go up in flames, and I'll still swear it. The entire front wall simply seared away in a flash, like a singed hair. The stone archway was still in place. Light flowed into the darkened cabin. Kyren Sedek had his arms tightly around Polly Gonderjhee.

Sedek moved slowly, as if drugged. He could only have said, "No. It can't be."

"So. How desperate Kyren Sedek has become!" Maybe those weren't the words, but that was the tone. Sedek's eyes flashed, and he dragged Mrs. G into the light.

"Yes, Kyren Sedek will survive!" Of course, *he* did not refer to the non-existent person before him.

"And I have something Kyren Sedek does not have," Cyntoj said mockingly. "I have the freedom to do—this!" He turned and ran, straight toward one of the outbuildings.

"No!" Sedek tore after him. Perfect.

Cyntoj pulled out another of the walnuts, and threw it. It hit the building.

A column of blue flame rose skyward. If we were on Earth, we could have signaled Mars with it.

Sedek's own lash-belt snapped out. Cyntoj dodged it like it wasn't there. His reflexes were superb, and he had plenty of practice in the past few weeks.

Secure in the knowledge that Sedek was fighting The Dead Man and was screwed in any case, I sidled around to the spot where the interphase rifle was propped against a wall. Someone saw me, just a movement from another corner, and I shot. I saw blue blood as I dived into the trees. No one followed me. The rest were all down watching Sedek and The Dead Man, horrified.

I got back to the porch. I noticed that the front of the cabin didn't look too burnt, though I was focusing on Mrs. G. "Polly!" I hissed. "Mrs. Gonderjhee!" She stood numbly on the porch, staring in the Tyrellians' direction. She must be drugged, I thought in discouragement.

Suddenly there were two people beside me: Araee and Eduardo. Araee took in the situation at a glance, and said, "This I can handle." Her hand dived into her pocket and came out with a small vial. She mashed the vial into Mrs. Gonderjhee's hand.

I watched Polly Gonderjhee come back to life. She looked down at Araee, then at me. I breathed a sigh of relief as she reached for the rifle. We scrambled out of sight.

"All okay," said Eduardo. They had rescued Tyler.

I nodded. "Cyntoj told us to clear out and lie low after this."

I didn't fool Mrs. Gonderjhee. "Why?"

"My guess would be, so he could blow up the compound and take them all with him. He's reached his limit." I met her eyes. "After all, he's The Dead Man, you know."

"I know. I'm rather dead myself." *Snick* went the rifle. "Where are you planning to be?"

"East side. Want the west?"

"You and Araee take the west. East will give me better cover."

"Yes, *ma'am*," I said. Eduardo grinned, and put away his knife—blue with blood, he'd actually killed a real Tyrellian—and got out his pistol to join us. "What a bloodthirsty bunch we've become," he commented.

"We'll outgrow it," said Mrs. Gonderjhee.

The munitions shed still lit up the sky in a manner that must have been appalling to a bunch of Tyrellians who wanted to stay under cover. I wondered how he'd done that with nothing but a walnut. I'd bet ConFed Ordnance would like to know, too.

Right now, though, he had the belt-sling and no walnuts. He was doing pretty good for himself; Kyren Sedek looked to be in much worse shape, and there was one Tyrellian laid out on the ground. He must have decided to damn himself and go after The Dead Man anyway, for the honor of the clan, and Cyntoj dispatched him in his spare time.

They were fast and vicious, like two Ninja fighters on speed. The rest were circling. They looked like wolves. They were closing in. If Sedek didn't get him, they would.

I had just realized that this location was well-protected from sniper attacks on both the east and west sides. So, apparently, had Mrs. Gonderjhee. Eduardo, Araee and I were sneaking closer, clinging to buildings, when I heard the sound of the interphase rifle. Sneaking was pointless. I stepped around the corner of the building. Most of the remaining Tyrellians had turned their backs on Sedek and Cyntoj, and were drawing pistols for a new threat—the woman with the rifle, in the middle of the street.

Mrs. Gonderjhee wasn't being coy. She had the rifle on wide-range and mowed four of them down, while Araee, Eduardo, and I worked on the rest. She had control, to shoot down the nearer Tyrellians while not touching Sedek and Cyntoj. I saw Sedek falter, and I saw Cyntoj's belt wrap around his throat. Cyntoj choked him dead. Unlike all the other Tyrellians Cyntoj had attacked, he made sure that Kyren Sedek would not live. When Sedek was unconscious, Cyntoj slit his throat.

Then he stood, and looked at me accusingly. "I don't recall telling you to do this."

I never got a chance to speak. Mrs. Gonderjhee interrupted, "Cyntoj, come here, please." She said please, but with Mrs. G., you knew an order when you heard one. When he obeyed, she looked up into his face. "As long as you work for me, you will never put yourself in a suicidal position again."

He was silent.

"Have I made myself clear?"

"Perfectly clear, *ma'am*," he muttered.

"We can discuss this later." She turned on her heel. "I don't want any more casualties. And, that pillar of flame should be visible for miles. We must leave the area. Come. We have a long way to go."

I heard a chuckle. It occurred to me I'd heard that voice before. Now, it was above my head. "I don't think so, my lady."



## Planting Walnuts

"What—?" She stared at Korgorite Captain Garkin as he slid down from the tree. I never realized that happy Korgorites showed quite so many teeth.

"I think it's high time I put you all out of Heland, back east to wherever you came from. I owe you my apologies, Captain Smantek. I thought you knew the Sedek clan was somewhere in this region. I knew that, although I didn't know exactly where. I do keep informed on *some* Tyrellian clan politics."

"You knew they were here," Mrs. Gonderjhee said sharply.

"Madam," said the Captain quietly, "did you see what one Tyrellian did to eight of my soldiers? Of course you did. You were the sharpshooter in the brush. Better to face a pack of maddened boars than to take on a desperate Tyrellian clan."

"And you chose to fight fire with fire," I said.

He continued to speak to Cyntoj. "I keep informed, I admit, in the hope of learning that someday, someone will eradicate the Shimtek clan, and possibly all of Tyrel Fleet Base 3."

"Considering Tyrellian politics," Cyntoj replied, "it is not such a vain hope."

The grin got wider. "You have your friends and supporters, as the Sedek clan does." He amended, "Or did."

"My friends," said Cyntoj, "are not Tyrellian, as you may have noticed."

Garkin waved a foreclaw. The bushes responded, producing the rest of our group, under guard, not looking happy.

"I have standing orders to shoot all non-Korgorite intruders. I am bending an important rule, but you have done the Korgorite Nation a great service. Have you all your equipment? And your records? Good. No, you may not travel another day west, if you wish to live. Well, madam, Captain, and company, I certainly enjoyed your visit. But I think you must go. No, not another word; eastward ho, or I shall become very severe! Guards will check you along the way."

We were sunk. The contract said we had to get within sight of the city. It had to be at least three or four more days, walking, before we even got near enough to see people. I looked at the Korgorites all around us. We couldn't shoot our way out of this.

Mrs. Gonderjhee swallowed. "So close. So close!"

Cyntoj blinked, and looked at her in surprise. Apparently it took him a moment to recollect why we were here. Then he turned to Garkin.

"We want one look at the city, Captain. I will never return. My friend has never seen my home."

"I cannot allow you to travel further westward."

"We need travel no further—" he glanced upward—"than the top of that waterfall."

Garkin and I both tilted our heads back to look at the jungle-covered, nearly-sheer rocky stretch. "Are you kidding me?" I said. "I can't climb that."

"I can," said Cyntoj.

Garkin's teeth showed. "My orders were to prevent you from going west, not up. But not your entire group. Your friends will stay with me."

"It's more than fair," Cyntoj said. He turned to Mrs. G. "Do you trust me?"

Mrs. G didn't think twice. She spoke only one word: "Yes."

I watched them climb the rocky, scrub-covered waterfall, my heart in my teeth. Cyntoj never really let go of her, but he never really held on. He just coached her, to the top of a wall that I wouldn't have taken on a bet. I saw them reach the top, and disappear from sight. I was sure she was looking at the city with her scope, which was also a recorder. She had the first official outside view of the walls of Tyrel City. Then, they came back

down again. The trip totaled 4 hours. My neck ached and I was drenched in sweat by the time they reached bottom. It hadn't helped that Araee had stayed right beside me, watching, making little noises occasionally. Garkin was still showing all his teeth.

For the first time since I'd met her, I saw real peace on Polly Gonderjhee's face. Cyntoj's face showed something more than peace. There was also another emotion I couldn't identify.

We started east.

We made much better time going out. Eighteen days in, but only fourteen days out. This doesn't mean we got out unscathed. The first day on our way, Tyler died of his wounds. He had a last whispered conversation with Mrs. Gonderjhee before he died. Apparently, she forgave him everything. Mrs. Gonderjhee placed his body in a wolf-spider cave, and cleaned the cave with the interphase rifle.

The trip back, along another route, was faster, shorter, and somehow worse. We had the records, and we'd done ninety-five per cent of the job. We were successful. But more than half of our party had died, and we didn't have anything to keep our minds off our troubles.

Once I realized that, I told Mrs. G that we needed to plant walnuts, Korgorites or not. Bless her, she only smiled and said, "Yes, let's." So we planted walnuts, surreptitiously, in between surprise drop-in visits from Korgorite scout parties. It kept our minds doubly occupied—even Cyntoj, who was as silent as a statue most of the time.

I saw that thoughtful look of Mrs. Gonderjhee's every once in a while. Sooner or later, she'd tackle him.

It happened one night, inside a cave, after a meal. Eduardo and Thomsen were on guard duty; for a rare change, Cyntoj and I were eating and sleeping at the same time. Mrs. G crumpled her food wrapper thoughtfully and tossed it into the hotrocks, where it flamed and fizzled. The flare must have reminded her of the munitions shack. Quietly, she said, "He was a vampire."

"All Tyrellians are." Cyntoj understood. "Some more than others. Kyren was one of the worst."

She shook her head. "I don't mean that just because he was Tyrellian."

"I understood what you meant. I have learned to deal with many races. Treat them as equals, Tyrellian to Tyrellian, and they will respond equally, with dignity. Treat them as slaveys, Tyrellian to Korgorite—and you get what you deserve, rebellion and anger."

"So you treat all the universe as your equals—except your own people," Mrs. Gonderjhee said thoughtfully. "You treat them the way they treated their slaves—and they respond like those poor Korgorites once did, in the days of their enslavement."

Cyntoj chose his words carefully. "Even in our legends—Tyrellians are not native to this planet. Did you realize that?"

"No."

"Our blood has a different color, and a different base, from all other life on Tyrel 3. Our reflexes and thought patterns are different. Even our neural systems run backward. Unlike every other civilized nation, we have a pantheon of demons rather than gods, and choose our pets for their violence. No. Someday, Tyrel shall cleanse itself of the so-called Tyrellian race. I do not think it shall be such a great loss."

Mrs. Gonderjhee asked, "What of you, Cyntoj? What of your parents? Your family? What do you claim, in all of this?"

Cyntoj stared for a long time at nothing. When he spoke, there was a strange tone in his voice—almost ironic. "I was

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raised by the Empire, so to speak. My parents were murdered when I was quite young. My clan did not need me, and so they turned me over to the government. I became a Tyrellian soldier when I was seven years old. Tyrel is required to send a minimum number of residents to the ConFed for education, as a measure of good faith. So, at age fourteen, I was sent to Fleet Academy—not because of the honor. Because I was expendable.” He shrugged. I had never seen him shrug. “I have always been expendable.”

The words were out of my mouth before I thought. “You still had the Fleet! Why didn’t you go back?”

“Murdered, you said.” Mrs. Gonderjhee spoke as if I had never asked a question.

“Yes. Kachira Sedek never forgot an injury done to her by my mother.”

“What was the injury?”

“Marrying my father. I proved to the Empress that the Smantek clan was eliminated only to satisfy Sedek’s grudge. She lost many faithful supporters during that purge. The Empress responded in kind. Kyren Sedek responded to that. It never ends. Eventually, they will eat themselves alive.”

“Mmph.” Mrs. Gonderjhee leaned back, nowhere near as shocked as I was. “If I looked at Fleet personnel records, I would find a gap where some respectable long-time officer took a sudden, unexpected leave of absence recently. Who might that farsighted officer be?”

I’m sure Cyntoj didn’t even realize he smiled. “Harry Jackson,” he admitted, “after I blew three civilian jobs and gave it up to go home. He came to Tyrel 3 and told me not to be such a dam’ fool. If I wasn’t going to teach, the way I ought, then for Christ’s sake stop feeling sorry for myself and go help some people who needed it, while he set me straight with the Admiralty.” His imitation of his friend and superior officer, whom I had seen, was perfect.

Mrs. Gonderjhee did not smile. “That’s who you love. That’s where your life is. I wondered.”

“Then why does it matter to you,” I asked him across the coals, “if all the Tyrellians in the galaxy call you a dead man? Why should that affect your abilities, or your career?” Araee, sitting next to me, rapped me with her foot warningly. I chose to ignore her.

“Wherever I am, I am still Tyrellian. That is all I have.”

Mrs. Gonderjhee added her response. “You might as well ask, Mr. Brannon, why it matters to me to have a proper annulment, to go through—as the yogi phrased it—‘years of faultless virtue.’ Because it does matter, that’s all—to me—and nothing else will ever be right.”

“It’s only psychological,” I argued, “not physical. Anyone taking a damn good look at Cyntoj could see there’s nothing wrong with him.”

Araee looked very thoughtful.

“I wonder,” Mrs. Gonderjhee murmured, “what Captain Garkin gains from this. Aside from the Tyrel blight removed from his landscape, without raising his hand.”

Cyntoj admitted, “A perfectly good ammo dump, for another. I only damaged one of the three buildings with the walnuts.”

—Using techniques which you cannot remember how to do,” said Araee.

He confirmed this. “I marshaled all my strength to deceive Sedek, and only Sedek. I felt the lethargy fall away in my concentration. Now, I feel as though my memory and strength are greater than ever before. I do not understand it.”

I looked at him, then at Polly Gonderjhee, and suddenly I understood it, quite well. I glanced down at Araee, still intent on Cyntoj, and realized I was the only one who did. I remembered what Polly Gonderjhee told Sam. The four Earthly virtues could be found in places other than Earth. She got mercy from K-Law, pity from the Kikkens, peace from Orion. That left one virtue to go. Someday she’d get it, from Tyrel 3.

I wiped away a smile. “Well, whatever happened, your power is up to speed now, Cyntoj. No more ducking into corners.” I slid down into my sleeping bag and closed my eyes.

“You have my promise, Brannon.”

Cyntoj ducked away from the village again when we reached the shore. At least now, I understood why. If he could panic twenty Tyrellians, a village of three hundred would be bedlam.

Sam had drifted north of town, and no one had cared. The Rustbucket—I mean the *Ridstock*—was wonderful to see.

So was Sam. He’d held his own against the Tyrellian government. There was a glint in his eye that promised a few stories of his own. I was never so happy to see anybody as when he popped out of the top hatch, and the ship drifted in to shore.

“Welcome back,” Sam said in relief, pulling Mrs. Gonderjhee aboard, “it’s been a time. Where are the others?”

Mrs. Gonderjhee looked back at us: Four, and herself. Six less than when we started. “This is it, Sam. Now, let’s get out of here.”

“God in Heaven,” said Sam Byner.

The office of Gonderjhee & Co. now sported a bright sign on the outer door, painted in red and gold bonding paint. Just like the ship. Sam stood up when we entered the office.

He paid us both. My God, did that look good! One thousand credits apiece, half a year’s salary at my last job. In scrip. He watched us each tuck the cash in our bags.

“Where’s Mrs. Gonderjhee?” I asked. Sam pointed to an inner office. (Oh, did I mention it was a four-room office *suite* now?)

“She’s making calls. She just chatted with Internal Revenue. We’re clear.”

“We are?”

Sam nodded. “Tyler gave her some passwords that did the trick.” He sighed. “I am sorry about him. I liked him.” Then he smiled. “She’s also lining up some new jobs.”

“Jobs? Plural?”

He nodded. “And easier. Oh, we’ll still get dirty jobs, I suppose, but we’ve proven our reliability. I’m almost afraid to say, we’re an established company now.”

“I’ll hang around long enough to say goodbye, then,” I said.

There was a quizzical look on Sam’s face. Cyntoj looked at me strangely, too. “Going somewhere?” Sam asked.

“Yes.”

Sam shook his head. “Cyntoj I expected to move on, since he got that peculiar message about the tree that still bloomed. I knew that meant he was still persona grata in the Tyrellian Empire. But you, Brannon—I always figured you’d stay. We can still use the help.”

I understood what he didn’t say. “Mrs. G will always find supporters, Sam. I don’t think you have to worry.”

We turned when she stepped out of the back office. “Sam,” she said, “talk to Annie from Contracts, will you, please? She and Araee have a misunderstanding. Use the line in my office.” Sam nodded, and tactfully slipped out of the room.

She looked up into Cyntoj’s face. “You’re leaving.”



## Planting Walnuts

"I am." His voice sounded gentle. "As Sam pointed out, I am free now. I may come and go as I please."

"I am grateful." She lifted a hand, and clasped his. "Very grateful for the time and effort you gave us."

"Now you have your work, as I have mine."

"True. In a way, I'm glad you both showed up together." She included me in her gaze. "Somewhere about the Sixth Heland Ridge, I decided to offer all survivors a partnership in the company. Now that it looks like we're going to survive, of course. I mean to offer both of you, even though I know you're both free now."

I was surprised. "What did Thomsen and Eduardo say?"

"Eduardo said this place would bring back bad memories," she admitted, "and Thomsen said we made him itch."

I took a breath. "I can't stay, either. I'm sorry, but I'm going to be busy. I'm going back to Orion 4." I was embarrassed. "Where you know damned well I jumped on a ship one step ahead of a theft rap."

I saw a real Polly Gonderjhee smile. "Mr. Brannon, are you developing morals and scruples, at your age?"

"If you can face this—" I waved in the general direction of Gonderjhee & Co.—"Then I can stand that. If I could stay, I would, but—it wouldn't feel right."

Very gently, she said, "I'll hold your job open for you."

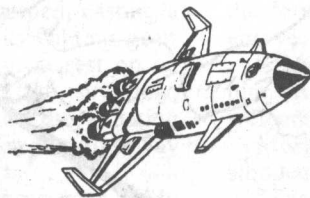
"Then I'll be back as soon as I can." After all, Rez Kikken was a friend of hers. She could pull strings.

"Fair enough. Goodbye, gentlemen." She turned and left for her office.

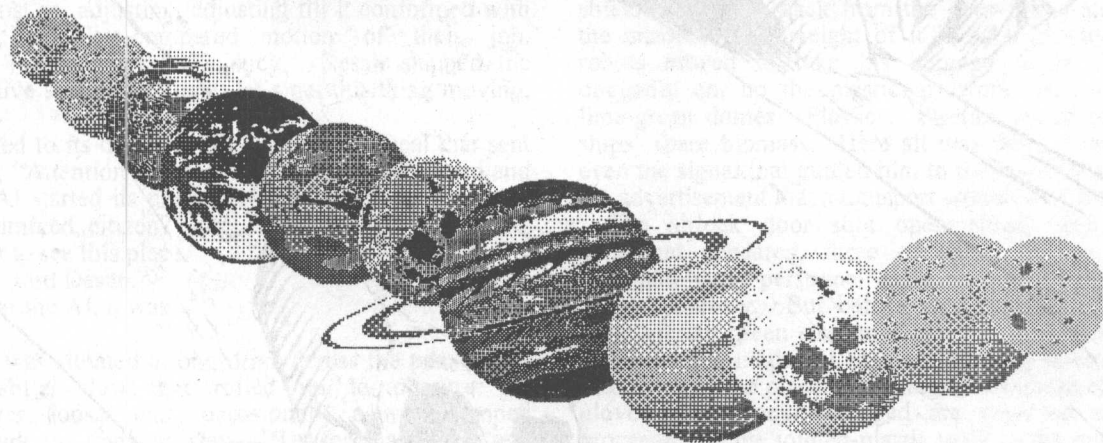
Cyntoj looked puzzled. "I thought you were staying. Why are you doing this?"

I was rude. "Time to put my money where my mouth is. If you had any brains, I wouldn't have to explain it to you."

Cyntoj wasn't insulted. He did have brains. He looked at me, then at the corridor to the space lock. He picked up his gripsack—and headed back toward Polly's office. The last words I heard as I left for the departure lounge were Cyntoj's: "What is the value of a partnership, in round figures?"



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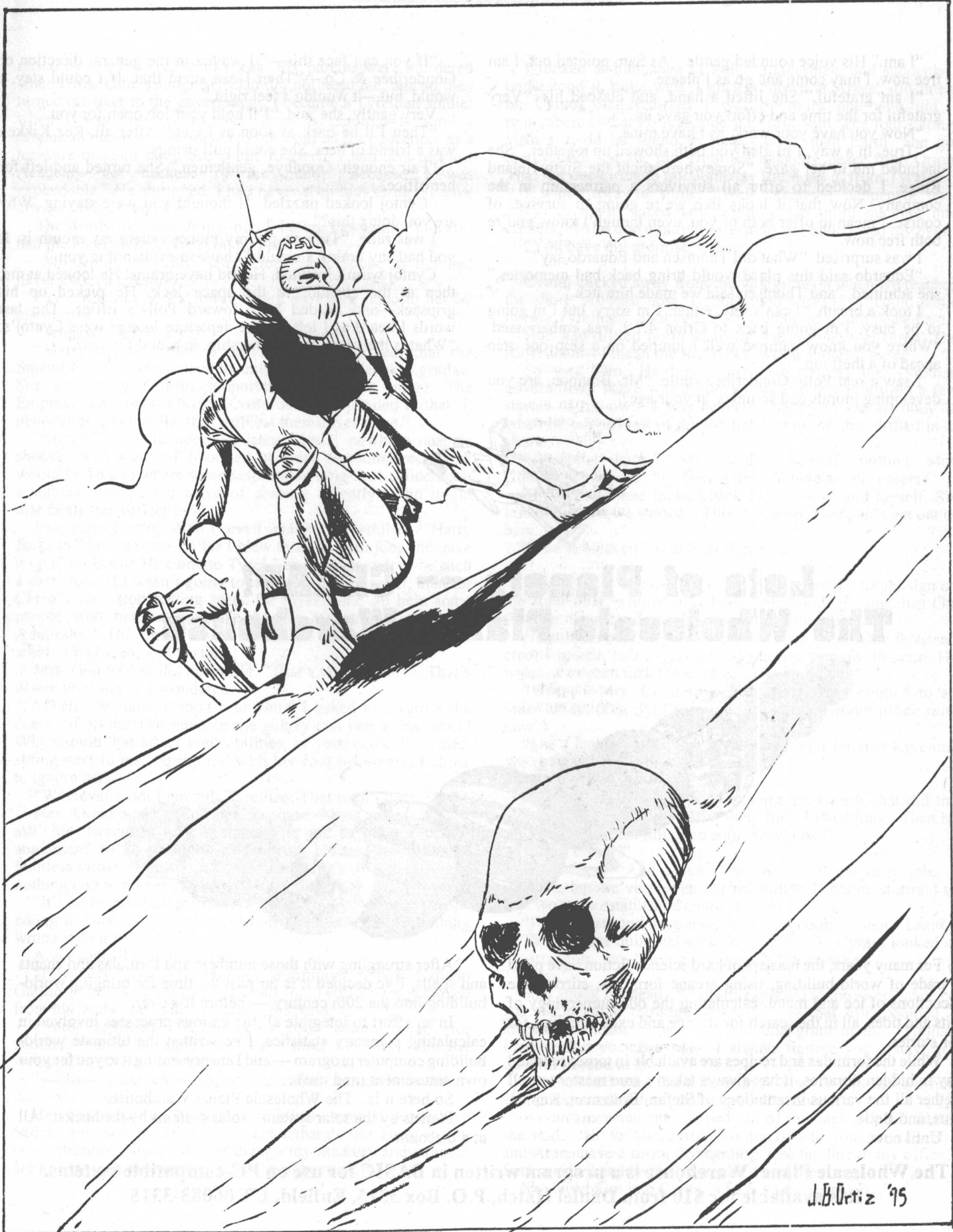
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C.J. Cherryh's first book, *The Gates of Ivrel*, was published in 1976.  
Since that time she has written more than thirty novels winning Hugo awards for *Down below Station* and *Cyteen*.  
This is her second appearance in the pages of *Absolute Magnitude*.

## POTS

by C. J. Cherryh

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It was a most bitter trip, the shuttle descent to the windy surface. Suited, encumbered by lifesupport, Desan stepped off the platform and waddled onward into the world, waving off the attentions of small spidery service robots: "Citizen, this way, this way, citizen, have a care—do watch your step; a suit tear is hazardous."

Low-level servitors. Desan detested them. The chief of operations had plainly sent these creatures accompanied only by an AI eight-wheel transport, which inconveniently chose to park itself a good five hundred paces beyond the shuttle blast zone, an uncomfortable long walk across the dusty pan in the crinkling, pack-encumbered oxy-suit. Desan turned, casting a forlorn glance at the shuttle waiting there on its landing gear, silver, dip-nosed wedge under a gunmetal sky, at rest on an ocher and rust landscape. He shivered in the sky-view, surrendered himself and his meager luggage to the irritating ministries of the service robots, and waddled on his slow way down to the waiting AI transport.

"Good day," the vehicle said inanely, opening a door. "My passenger compartment is not safe atmosphere; do you understand, lord Desan?"

"Yes, yes." Desan climbed in and settled himself in the front seat, a slight give of the transport's suspensors. The robots fussed about in insectile hesitance, delicately setting his luggage case just so, adjusting, adjusting till it conformed with their robotic, template-compared notion of their job. Maddening. Typical robot efficiency. Desan slapped the pressure-sensitive seating. "Come, let's get this thing moving, shall we?"

The AI talked to its duller cousins, a single squeal that sent them scuttling; "Attention to the door, citizen." It lowered and locked. The AI started its noisy drive motor, "Will you want the windows dimmed, citizen?"

"No. I want to see this place."

"A pleasure, lord Desan."

Doubtless for the AI, it was.

The station was situated a long drive across the pan, across increasingly softer dust that rolled up to obscure the rearview—softer, looser dust, occasionally a wind-scooped hollow that made the transport flex—"Do forgive me, citizen. Are you comfortable?"

"Quite, quite, you're very good."

"Thank you, citizen."

And finally—*finally!*—something other than flat appeared, the merest humps of hills, and one anomalous mountain, a massive, long bar that began as a haze and became solid; became a smooth regularity before the gentle brown folding of hills hardly worthy of the name.

Mountain. The eye indeed took it for a volcanic or sedimentary formation at distance, some anomalous and stubborn outcrop in this barren reach, where all else had declined to entropy, absolute, featureless flat. But when the AI passed along its side this mountain had joints and seams, had the marks of *making* on it; and even knowing in advance what

it was, driving along within view of the jointing, this work of Ancient hands—chilled Desan's well-traveled soul. The station itself came into view against the weathered hills, a collection of shocking green domes on a brown lifeless world. But such domes Desan had seen. With only the AI for witness, Desan turned in his seat, pressed the flexible bubble of the helmet to the double-seal window, and stared at the stonework until it passed to the rear and the dust obscured it.

"Here, lord," said the AI, eternally cheerful. "We are almost at the station—a little climb. I do it very smoothly."

Flex and lean; sway and turn. The domes lurched closer in the forward window and the motor whined. "I've very much enjoyed serving you."

"Thank you." Desan murmured, seeing another walk before him, ascent of a plastic grid to an airlock and no sight of a welcoming committee.

More service robots, scuttling toward them as the transport stopped and adjusted itself with a pneumatic wheeze.

"Thank you, lord Desan, do watch your helmet, watch your lifesupport connections, watch your footing please. The dust is slick..."

"Thank you." With an AI one had no recourse.

"Thank *you*, my lord." The door came up; Desan extracted himself from the seat and stepped to the dusty ground, carefully shielding the oxy-pack from the door-frame and panting with the unaccustomed weight of it in such gravity. The service robots moved to take his luggage while Desan waddled doggedly on, up the plastic gridwork path to the glaringly lime-green domes. Plastics. Plastics which came from their ships' spare biomass. Here all was dead, frighteningly void: even the signal that guided him to the lakebed was robotic, like the advertisement that a transport would meet him.

The airlock door shot open ahead; and living, suited personnel appeared, three of them, at last, at long last, flesh-and-blood personnel came walking toward him to offer proper courtesy. But before that mountain of stone; before these glaring green structures and the robotic paraphernalia of research that made all the reports real—Desan still felt the deathlines of the place. He trudged ahead, touched the offered, gloved hands, acknowledged the expected salutations, and proceeded up the jointed-plastic walk to the open airlock. His marrow refused to be warmed. The place refused to come into clear focus, like some bad dream with familiar elements hideously distorted.

A hundred years of voyage since he had last seen this world and then only from orbit, receiving reports third-hand. A hundred years of work on this planet preceded this small trip from port to research center, under that threatening sky, in this place by a mountain that had once been a dam on a lake that no longer existed.

There had been the findings on the moon, of course. A few artifacts. A cloth of symbols. Primitive, unthinkably primitive. First omen of the findings of this sere, rust-brown world.

He accompanied the welcoming committee into the airlock of the main dome, waited through the cycle, and breathed a sigh

## Absolute Magnitude

of relief as the indicator-lights went from white to orange and the inner door admitted them to the interior. He walked forward, removed the helmet and drew a deep breath of air unexpectedly and unpleasantly tainted. The foyer of this centermost dome was businesslike—plastic walls, visible ducting. A few plants struggled for life in a planter in the center of the floor. Before it, a black pillar and a common enough emblem; a plaque with two naked alien figures, the diagrams of a starsystem—reproduced even to its scars and pitting. In some places it might be mundane, unnoticed.

It belonged here, *belonged* here, and it could never be mundane, this message of the Ancients.

"Lord Desan," a female voice said, and he turned, awkward in the suit.

It was Dr. Gothon herself, unmistakable aged woman in science-blues. The rare honor dazed him, and wiped away all failure of hospitality thus far. She held out her hand.

Startled, he reacted in kind, remembered the glove, and hastily drew back his hand to strip the glove. Her gesture was gracious and he felt the very fool and very much off his stride, his hand touching—no, firmly grasped by the calloused, aged hand of this legendary intellect. Age-soft and hard-surfaced at once. Age and vigor. His tongue quite failed him, and he felt, recalling his purpose, utterly daunted.

"Come in, let them rid you of that suit, lord Desan. Will you rest after your trip, a nap, a cup of tea, perhaps? The robots are taking your luggage to your room. Accommodations here aren't luxurious, but I think you'll find them comfortable."

Deeper and deeper courtesies. One could lose all sense of direction in such surroundings, letting oneself be disarmed by gentleness, by pleasantness—by embarrassed reluctance to resist.

"I want to see what I came to see, doctor." Desan unfastened more seams and shed the suit into waiting hands, smoothed his coveralls. Was that too brusque, too unforgivably hasty? "Don't think I *could* rest, Dr. Gothon. I attended my comfort aboard the shuttle. I'd like to get my bearings here at least, if one of your staff would be so kind to take me in hand—"

"Of course, of course. I rather expected as much—do come, please, let me show you about. I'll explain as much as I can. Perhaps I can convince you as I go."

He was overwhelmed from the start; he had expected *some* high official, the director of operations most likely. Not Gothon. He walked slightly after the doctor, the stoop-shouldered presence which passed like a benison among the students and lesser staff—I saw the *Doctor*, the young ones had been wont to say in hushed tones, aboard the ship, when Gothon strayed absently down a corridor in her rare intervals of waking. *I saw the Doctor*.

In that voice one might claim a theophany.

They had rarely waked her, lesser researchers being sufficient for most worlds; while he was the fifth lord-navigator, the fourth born on the journey, a time-dilated trifle, fifty two waking years of age and a mere two thousand years of voyage against—aeons of Gothon's slumberous life.

And Desan's marrow ached now at such gentle grace in this bowed, mottle-skinned old scholar, this sleuth patiently deciphering the greatest mystery of the universe. Pity occurred to him. He suffered personally in this place; but not as Gothon would have suffered here, in that inward quiet where Gothon carried on thoughts the ship-crews sternly admonished never to disturb.

Students rushed now to open doors for them, pressed themselves to the walls and allowed their passage into deeper

and deeper halls within the maze of the domes. Passing hands brushed Desan's sleeves, welcome offered the current lord-navigator; he reciprocated with as much of his attention as he could devote to courtesy in distress. His heart labored in the unaccustomed gravity, his nostrils accepted not only the effluvium of dome-plastics and the recyclers and so many bodies dwelling together; but a flinty, bitter air, like electricity or dry dust. He imagined some hazardous leakage of the atmosphere into the dome: unsettling thought. The hazards of the place came home to him, and he wished already to be away.

Gothon had endured here, during his further voyages—seven years more of her diminishing life; waked four times, and this was the fourth, continually active now for five years, her longest stint yet in any waking. She had found data finally worth the consumption of her life, and she burned it without stint. *She* believed. She believed, enough to die pursuing it.

He shuddered up and down and followed Gothon through a seal-door toward another dome, and his gut tightened in dismay; for there were shelves on either hand, and those shelves were lined with yellowed skulls, endless rows of staring dark sockets and grinning jaws. Some were short. Some small, virtually noseless skulls had fangs which gave them a wise and intelligent look—*like miniature people, like babies with grown up features*, must be the local reaction of anyone seeing them in the holos or viewing the specimens brought up to the orbiting labs. But cranial capacity in these was much too small. The real sapient occupied further shelves, row upon row of eyeless, generously domed skulls, grinning in their flat-toothed way, in permanent horror—provoking profoundest horror in those that discovered them here, in this desolation.

Here Gothon paused, selected one of the small sapient skulls, much reconstructed: Desan had at least the skill to recognize the true bone from the plassbone bonded to it. This skull was far more delicate than the others, the jaw smaller. The front two teeth were restructs. So was one of the side.

"It was a child," Gothon said. "We call her Missy. The first we found at this site, up in the hills, in a streambank. Most of Missy's feet were gone, but she's otherwise intact. Missy was all alone except for a little animal tucked up in her arms. We keep them together—never mind the cataloging." She lifted an anomalous and much reconstructed skull from the shelf among the sapients; fanged and delicate. "Even archaeologists have sentiment."

"I—see—" Helpless, caught in courtesy, Desan extended an unwilling finger and touched the child-skull.

"Back to sleep." Gothon set both skulls tenderly back on the shelf; and dusted her hands and walked further, Desan following, beyond a simple door and into a busy room of workbenches piled high with a clutter of artifacts.

Staff began to rise from their dusty work in a sudden startlement. "No, no, go on," Gothon said quietly. "We're only passing through; ignore us. —Here, do you see, lord Desan?" Gothon reached carefully past a researcher's shoulder and lifted from the counter an elongated ribbed bottle with the opalescent patina of long burial. "We find a great many of these. Mass production. Industry. Not only on this continent. This same bottle exists in sites all over the world, in the uppermost strata. Same design. Near the time of the calarinity. We trace global alliances and trade by such small things." She set it down and gathered up a virtually complete vase, much patched. "It always comes to pots, lord Desan. By pots and bottles we track them through the ages. Many layers. They had a long and complex past."



## Pots

Desan reached out and touched the corroded brown surface of the vase, discovering a single bright remnant of the blue glaze along with the gray encrustations of long burial. "How long—how long does it take to reduce a thing to this?"

"It depends on the soil—on moisture, on acidity. This came from hereabouts." Gothon tenderly set it back on a shelf, walked on, frail, hunch-shouldered figure among the aisles of the past. "But very long, very long to obliterate so much—almost all the artifacts are gone. Metals oxidize; plastics rot; cloth goes very quickly; paper and wood last quite long in a desert climate, but they go, finally. Moisture dissolves the details of sculpture. Only the noble metals survive intact. Soil creep warps even stone; crushes metal. We find even the best pots in a matrix of pieces, a puzzle-toss. Fragile as they are, they outlast monuments, they last as long as the earth that holds them, drylands, wetlands, even beneath the sea—where no marine life exists to trouble them. That bottle and that pot are as venerable as that great dam. The makers wouldn't have thought that, would they?"

"But—" Desan's mind reeled at the remembrance of the great plain, the silt and the deep buried secrets.

"But?"

"You surely might miss an important detail. A world to search. You might walk right over something and misinterpret everything."

"Oh, yes, it can happen. But *finding* things where we expect them is an important clue, lord Desan, a conformation—one only has to suspect where to look. We locate our best hope first—a sunken, a raised place in those photographs we trouble the orbiters to take; but one gets a *feeling* about the lay of the land—more than the mechanical probes, lord Desan." Gothon's dark eyes crinkled in the passage of thoughts unguessed, and Desan stood lost in Gothon's unthinkable mentality. What did a mind *do* in such age? Wander? Could the great doctor lapse into mysticism? To report such a thing—would solve one difficulty. But to have that regrettable duty—

"It's a feeling for living creatures, lord Desan. It's reaching out to the land and saying—if this were long ago, if I thought to build, if I thought to trade—where would I go? Where would my neighbors live?"

Desan coughed delicately, wishing to draw things back to hard fact. "And the robot probes, of course, do assist."

"Probes, lord Desan, are heartless things. A robot can be very skilled, but a researcher directs it only at a distance, blind to opportunities and the true sense of the land. But you were born to space. Perhaps it makes no sense."

"I take your word for it," Desan said earnestly. He felt the weight of the sky on his back. The leaden, awful sky, leprous and unhealthy cover between them and the start and the single moon. Gothon remembered homeworld. *Remembered homeworld*. Had been renowned in her field even there. The old scientist claimed to come to such a landscape and *locate* things by seeing things that robot eyes could not, by thinking thoughts those dusty skulls had held in fleshly matter—how long ago?

"—We look for mounds," Gothon said, continuing in her brittle gait down the aisle, past the bowed heads and shy looks of staff and students at their meticulous tasks. The work of tiny electronic needles proceeded about them, the patient ticking away at encrustations to bring ancient surfaces to light. "They built massive structures. Great skyscrapers. Some of them must have lasted, oh, thousands of years intact; but when they went unstable, they fell, and their fall made rubble; and the

wind came and the rivers shifted their courses around the ruin, and of course the weight of sediment piled up, wind and water driven. From that point, its own weight moved it and warped it and complicated our work." Gothon paused again beside a further table, where holos plates stood inactive. She waved her hand and a landscape showed itself, a serpentine row of masonry across a depression. "See the wall there. They didn't build it that way, all wavering back and forth and up and down. Gravity and soil movement deformed it. It was buried till we unearthed it. Otherwise, wind and rain alone would have destroyed it ages ago. As it will do, now, if time doesn't rebury it."

"And this great pile of stone—" Desan waved an arm, indicating the imagined direction of the great dam and realizing himself disoriented. "How old is it?"

"Old as the lake it made."

"But contemporaneous with the fall?"

"Yes. Do you know, that that mass may be standing when the star dies. The few great dams; the pyramids we find here and there around the world—one only guesses at their age. They'll outlast any other surface feature except the mountains themselves."

"Without life."

"Oh, but there is."

"Declining."

"No, no. Not declining." The doctor waved her hand and a puddle appeared over the second holo plate, all green with weed waving feathery tendrils back and forth in the surge. "The moon still keeps this world from entropy. There's water, not as much as this dam saw—it's the weed, this little weed that gives one hope for this world. The little life, the things that fly and crawl—the lichens and the life on the flatlands."

"But nothing *they* knew."

"No. Life's evolved new answers here. Life's starting over."

"It certainly hasn't much to start with, has it?"

"Not very much. It's a question that interests Dr. Bothogi—whether the life making a start here has the time left, and whether the consumption curve doesn't add up to defeat—but life doesn't know that. We're very concerned about contamination. But we fear it's inevitable. And who knows, perhaps it will have added something beneficial." Dr. Gothon lit yet another holo with the wave of her hand. A streamlined six-legged creature scuttled energetically across a surface of dead moss, frantically waving antennae and making no apparent progress.

"The inheritors of the world." Despair chilled Desan's marrow.

"But each generation of these little creatures is an unqualified success. The last to perish perishes in profound tragedy, of course, but without consciousness of it. The awareness will have, oh, half a billion years to wait—then, maybe it will appear; if the star doesn't fail; it's already far advanced down the sequence." Another holo, the image of a desert, blowing sand, beside the holo of the surge of weed in a pool. "Life makes life. That weed you see is busy making life. It's taking in and converting and building a chain of support that will enable things to feed on it, while more of its kind grows. That's what life does. It's busy, all unintended, of course, but fortuitously building itself a way off the planet."

Desan cast her an uncomfortable look askance."

"Oh, indeed. Biomass. Petrochemicals. The storehouse of aeons of energy all waiting the use of Consciousness. And that consciousness if it arrives, dominates the world because

## Absolute Magnitude

awareness is a way of making life more efficiently. But consciousness is a perilous thing, lord Desan. Consciousness is a computer loose with its own perceptions and performing calculations on its own course, in the service of that little weed; billions of such computers all running and calculating faster and faster, adjusting themselves and their ecological environment, and what if there were the smallest, the most insignificant software error at the outset?"

"You don't believe such a thing. You don't reduce us to that." Desan's faith was shaken; this good woman had not gone unstable, this great intellect had had her faith shaken, that was what—the great and gentle doctor had, in her unthinkable age, acquired cynicism, and he fought back with his fifty-two meager years. "Surely, but surely this isn't the proof, doctor, this could have been a natural calamity."

"Oh, yes, the meteor strike." The doctor waved past a series of holos on a fourth plate, and a vast crater showed in aerial view, a crater so vast the picture showed planetary curvature. It was one of the planet's major features, shockingly visible from space. "But this solar system shows scar after scar of such events. A many-planeted system like this, a star well-attended by debris in its course through the galaxy—look at the airless bodies, the moons, consider the number of meteor strikes that crater them. Tell me, space-farer: am I not right in that?"

Desan drew in a breath, relieved to be questioned in his own element. "Of course, the system is prone to that kind of accident. But that crater is ample cause—"

"If it came when there was still sapience here. But that hammer-blow fell on a dead world."

He gazed on the eroded crater, the sandswept crustal melting, element of age. "You have proof."

"Strata. Pots. Ironic, they must have feared such an event very greatly. One thinks they must have had some sense of doom about them, perhaps on the evidence of their moon; or understanding the mechanics of their solar system; or perhaps primitive times witnessed such falls, and they remembered. One catches a glimpse of the mind that reached out from here...what impelled it, what it sought."

"How can we know that? We overlay our mind on their expectations—" Desan silenced himself, abashed, terrified. It was next to heresy. In a moment more he would have committed irremediable indiscretion; and the lords-magistrate on the orbiting station would hear it by supper-time, to his eternal detriment.

"We stand in their landscape, handle their bones, we hold their skulls in our fleshly hands and try to think *in* their world. Here we stand beneath a threatening heaven. What will we do?"

"Try to escape. Try to get off this world. They *did* get off. The celestial artifacts—"

"Archaeology is ever so much easier in space. A million years, two, and a thing still shines. Records still can be read. A color can blaze out undimmed after aeons, when first a light falls on it. One surface chewed away by microdust, and the opposing face pristine as the day it had its maker's hands on it. You keep asking me about the age of these ruins. But we know that, don't we truly suspect it, in the marrow of our bones—at what age they fell silent?"

"It *can't* have happened then!"

"Come with me, lord Desan." Gothon waved a hand, extinguishing all the holos, and, walking on, opened the door into yet another hallway. "So much to catalog. That's much of the work in that room. They're students, mostly. Restoring what they can; numbering, listing. In five hundred years more

of intensive cataloging and restoring, we may know them well enough to know something about their minds, though we may never find more of their written language than those artifacts on the moon. A place of wonders. A place of ongoing wonders, in Dr. Bothogi's work. A little algae beginning the work all over again. Perhaps not for the first time—interesting thought."

"You mean—" Desan overtook the aged doctor in the narrow, sterile hall, a series of ringing steps. "You mean—before the sapients evolved—there were other calamities, other re-beginnings."

"Oh, well before. It sends chills up one's back, doesn't it, to think how incredibly stubborn life might be here, how persistent in the calamity of the skies—the algae and then the creeping things and the slow, slow climb to dominance—"

"Previous sapients?"

"Interesting question in itself. But a thing need not be sapient to dominate a world, lord Desan. Only tough. Only efficient. Haven't the worlds proved that? High sapience is a rare jewel. So many successes are dead ends. Flippers and not hands; lack of vocal apparatus—unless you believe in telepathy, which I assuredly don't. No. Vocalizing is necessary. Some sort of long-distance communication. Light-flashes; sound; something. Else your individuals stray apart in solitary discovery and rediscovery and duplication of effort. Oh, even with awareness—even granted that rare attribute—how many species lack something essential, or have some handicap that will stop them before civilization; before technology—"

"—before they leave the planet. But they *did* that, they were the one in a thousand—without them—"

"Without them. Yes." Gothon turned her wonderful soft eyes on him at close range and for a moment he felt a great and terrible stillness like the stillness of a grave. "Childhood ends here. One way or the other, it ends."

He was struck speechless. He stood there, paralysed a moment, his mind tumbling freefall; then blinked and followed the doctor like a child, helpless to do otherwise.

*Let me rest, he thought then, let us forget this beginning and this day, let me go somewhere and sit down and have a warm drink to get the chill from my marrow and let us begin again. Perhaps we can begin with facts and not fancies—*

But he would not rest. He feared that there was no rest to be had in this place, that once the body stopped moving the weight of the sky would come down, the deadly sky the had boded destruction for all the history of this lost species; and the age of the land would seep into his bones and haunt his dreams as the far greater scale of stars did not.

*All the years I've voyaged, Dr. Gothon, all the years of my life searching from star to star. Relativity has made orphans of us. The world will have sainted you. Me it never knew. In a quarter of a million years—they'll have all forgotten; o doctor, you know more than I how a world ages. A quarter of a million years you've seen—and we're both orphans. Me endlessly cloned. You in your long sleep, your several clones held aeons waiting in theirs—o doctor, we'll recreate you. And not truly you, ever again. No more than I'm Desan-prime. I'm only the fifth lord-navigator.*

*In a quarter of a million years, has not our species evolved beyond us, might they not, may they not find some faster transport and find us, their aeons-lost precursors; and we will not know each other, Dr. Gothon—how could we know each other—if they had, but they have not; we have become the wavefront of a quest that never overtakes us, never surpasses us.*



## Pots

*In a quarter of a million years, might some calamity have befallen us and our world be like this world, ocher and deadly rust?*

*While we are clones and children of clones, genetic fossils, anomalies of our kind?*

*What are they to us and we to them? We seek the Ancients, the makers of the probe.*

Desan's mind reeled, adept as he was at time-relativity calculations, accustomed as he was to stellar immensities, his mind tottered and he fought to regain the corridor in which they walked, he and the doctor. He widened his stride yet again, overtaking Gothon at the next door.

"Doctor." He put out his hand, preventing her and then feared his own question, his own skirting of heresy and tempting of hers. "Are you beyond doubt? You can't be beyond doubt. They could have simply abandoned this world in its calamity."

Again the impact of those gentle eyes, devastating. "Tell me, tell me, lord Desan. In all your travels, in all the several near stars you've visited in a century of effort, have you found traces?"

"No. But they could have gone—"

"—leaving no traces, except on their moon?"

"There may be others. The team in search on the fourth planet—"

"Finds nothing."

"You yourself say that you have to stand in that landscape, you have to think with their mind—maybe Dr. Ashodt hasn't come to the right hill, the right plain—"

"If there are artifacts there are only a few. I'll tell you why I know so. Come, come with me." Gothon waved a hand and the door gaped on yet another laboratory.

Desan walked. He had rather have walked out to the deadly surface than through this simple door, to the answer Gothon promised him...but habit impelled him; habit, duty—necessity. He had no other purpose for his life but this. He had been left none, lord-navigator, fifth incarnation of Desan Das. They had launched his original with none, his second incarnation had had less, and time and successive incarnations had stripped everything else away. So he went, into a place at once too mundane and too strange to be quite sane—mundane because it was sterile as any lab, a well-lit place of littered tables and researchers; and strange because hundreds and hundreds of skulls and bones were piled on shelves in heaps on one wall, silent witnesses. An articulated skeleton hung in its frame; the skeleton of a small animal scampered in macabre rigidity on a tabletop.

He stopped. He stared about him, lost for the moment in the stare of all those eyeless sockets of weathered bone.

"Let me present my colleagues," Gothon was saying; Desan focussed on the words late, and blinked helplessly as Gothon rattled off names. Bothogi the zoologist was one, younger than most, seventeenth incarnation, burning himself out in profligate use of his years: so with all the incarnations of Bothogi Nan. The rest of the names slid past his ears ungathered—true strangers, the truly-born, sons and daughters of the voyage. He was lost in their stares like the stares of the skulls, eyes behind which shadows and dust were truth, gazes full of secrets and heresies.

They knew him and he did not know them, not even lord Bothogi. He felt his solitude, the helplessness of his convictions—all lost in the dust and the silences.

"Kagodte," said Gothon, to a white-eared, hunched individual, "Kagodte—the lord Desan has come to see your model."

"Ah." The aged eyes flicked nervously.

The hunched man walked over to the table, spread his hands. A holo flared and Desan blinked, having expected some dreadful image, some confrontation with a reconstruction. Instead, columns of words rippled in the air, green and blue. Numbers ticked and multiplied. In his startlement he lost the beginning and failed to follow them. "I don't see—"

"We speak statistics here," Gothon said. "We speak data; we couch our heresies in mathematical formulae."

Desan turned and stared at Gothon in fright. "Heresies I have nothing to do with, doctor. I deal with facts. I come here to find facts."

"Sit down," the gentle doctor said. "Sit down, lord Desan. There, move the bones over, do; the owners won't mind, there, that's right."

Desan collapsed onto a stool facing a white worktable. Looked up reflexively, eye drawn by a wall-mounted stone that bore the blurred image of a face, eroded, time-dulled—

The juxtaposition of image and bones overwhelmed him. The two whole bodies portrayed on the plaque. The sculpture. The rows of fleshless skulls.

*Dead. World hammered by meteors, life struggling in its most rudimentary forms. Dead.*

"Ah." Gothon said. Desan looked around and saw Gothon looking up at the wall in his turn. "Yes. That. We find very few sculptures. A few—a precious few. Occasionally the fall of stone will protect a surface. Confirmation. Indeed. But the skulls tell us that much. With our measurements and our holos we can flesh them. We can make them—even more vivid. Do you want to see?"

Desan's mouth worked. "No." A small word. A coward word. "Later. So this was *one* place—you still don't convince me of your thesis, doctor, I'm sorry."

"The place. The world of origin. A many-layered world. The last layers are rich with artifacts of one period, one global culture. Then silence. Species extinguished. Stratum upon stratum of desolation. Millions of years of geological record—" Gothon came round the end of the table and sat down in the opposing chair, elbows on the table, a scatter of bone between them. Gothon's green eyes shown watery in the brilliant light, her mouth was wrinkled about the jowls and trembled in minute cracks, like aged clay. "The statistics, lord Desan, the dry statistics tell us. They tell us centers of production of artifacts, such as we have; they tell us compositions, processes the Ancients knew—and there was no progression into advanced materials. None of the materials we take for granted, metals that would have lasted—"

"And perhaps they went to some new process, materials that degraded completely. Perhaps their information storage was on increasingly perishable materials. Perhaps they developed these materials in space."

"Technology has steps. The dry numbers, the dusty dry numbers, the incidences and concentration of items, the numbers and the pots—always the pots, lord Desan; and the imperishable stones; and the very fact of meteors—the undeniable fact of the meteor strikes. Could we not avert such a calamity for our own world? Could we not have done it—oh, a half a century before we left?"

"I'm sure you remember, Dr. Gothon. I'm sure you have the advantage of me. But—"

# Absolute Magnitude

"You see the evidence. You want to cling to your hopes. But there is only one question—no, two. Is this the species that launched the probe?—Yes. Or evolution and coincidence have cooperated mightily. Is this the only world they inhabited? Beyond all doubt. If there are artifacts on the fourth planet they are scoured by its storms, buried, lost."

"But they may *be* there."

"There is no abundance of them. There is no *progression*, lord Desan. That is the key thing. There is nothing beyond these substances, these materials. This was not a star-faring civilization. They launched their slow, unmanned probes, with their cameras, their robot eyes—not for us. We always knew that. We were the recipients of flotsam. Mere wreckage on the beach."

"It was purposeful!" Desan hissed, trembling, surrounded by them all, a lone credent among this quiet heresy in this room. "Dr. Gothon, your unique position—is a position of trust, of profound trust; I beg you to consider the effect you have—"

"Do you threaten me, lord Desan? Are you here for that, to silence me?"

Desan looked desperately around him, at the sudden hush in the room. The minute tickings of probes and picks had stopped. Eyes stared. "Please." He looked back. "I came here to gather data; I expected a simple meeting, a few staff meeting—to consider things at leisure—"

"I have distressed you. You wonder how it would be if the lords-magistrate fell at odds with me. I am aware of myself as an institution, lord Desan. I remember Desan Das. I remember launch, the original five ships. I have waked to all but one of your incarnations. Not to mention the numerous incarnations of the lords-magistrate."

"You cannot discount them! Even you—let me plead with you, Dr. Gothon, be patient with us."

"You do not need to teach me patience, Desan-Five."

He shivered convulsively. Even when Gothon smiled that gentle, disarming smile. "You have to give me the facts, doctor, not mystical communings with the landscape. The lords-magistrate accept that this is the world of origin. I assure you that they never would have devoted so much time to creating a base here if that were not the case."

"Come, lord, these power systems on the probe, so long dead—What was it truly for, but to probe something very close at hand? Even when orthodoxy admits that. And what is close at hand but their own solar system? Come, I've *seen* the original artifact and the original tablet. Touched it with my hands. This was a *primitive* venture, designed to cross their own solar system—which they had not the capability to do."

Desan blinked. "But the purpose—"

"Ah, the purpose."

"You say that you stand in a landscape and you think in their mind. Well, doctor, *use* this skill you claim. What did the Ancients intend? Why did they send it out with a message?"

The old eyes flickered, deep and calm and pained. "An oracular message, lord Desan. A message into the dark of their own future, unaimed, unfocused. Without answer. Without hope of answer. We know its voyage time. Five million years. They spoke to the universe at large. The probe went out, and they fell silent shortly afterward—the depth of this dry lake of dust, lord Desan, is eight and a quarter million years."

"I will not believe that."

"Eight and a quarter million years ago, lord Desan. Calamity fell on them, calamity global and complete within a century, perhaps within a decade of the launch of that probe. Perhaps calamity fell from the skies; but demonstrably it was atomics

and their own doing. They were at that precarious stage. And the destruction in the great centers is catastrophic and of one level. Destruction centered in places of heavy population. That is what those statistics say. Atomics, lord Desan."

"I cannot accept this!"

"Tell me, space-farer—do you understand the workings of weather? What those meteor strikes could do, the dust raised atomics could do with equal efficiency. Never mind the destruction of centers of government: we speak of global calamity, the dimming of the sun in dust, the living oceans and lakes choking in dying photosynthesers in a sunless winter, killing the food chain from the bottom up—"

"You have no proof!"

"The universality, the ruin of the population-centers. Arguably, they had the capacity to prevent meteor-impact. That may be a matter of debate. But beyond doubt in my own mind, simultaneous destruction of the population centers indicates atomics. The statistics, the pots and the dry numbers, lord Desan, doom us to that answer. The question is answered. There were no descendants; there was no escape from the world. They destroyed themselves before the meteor hit them."

Desan rested his mouth against his joined hands. Stared helplessly at the doctor. "A lie. Is that what you're saying? We pursued a lie?"

"Is it their fault that we needed them so much?"

Desan pushed himself to his feet and stood there by mortal effort. Gothon sat staring up at him with those terrible dark eyes.

"What will you do, lord-navigator? Silence me? The old woman's grown difficult at last: wake my clone after, tell it—what the lords magistrate select for it to be told?" Gothon waved a hand about the room, indicating the staff, the dozen sets of living eyes among the dead. "Bothogi too, those of us who have clones—but what of the rest of the staff? How much will it take to silence all of us?"

Desan stared about him, trembling. "Dr. Gothon—" He leaned his hands on the table to look at Gothon. "You mistake me. You utterly mistake me—the lords-magistrate may have the station, but I have the ships, *I*, *I* and my staff. I propose no such thing. I've come home—" The unaccustomed word caught in his throat; he considered it, weighed it, accepted it at least in the emotional sense. "*—home*, Dr. Gothon, after hundred years of search, to discover this argument and this dissension."

"Charges of heresy—"

"They dare not make them against *you*." A bitter laugh welled up. "Against *you* they have no argument and you well now it, Dr. Gothon."

"Against their violence, lord-navigator, I have no defense."

"But she has," said Dr. Bothogi.

Desan turned, flicked a glance from the hardness in Bothogi's green eyes to the even harder substance of the stone in Bothogi's hand. He flung himself about again, hands on the table, abandoning the defense of his back. "Dr. Gothon! I appeal to you! I am your friend!"

"For myself," said Dr. Gothon, "I would make no defense at all. But, as you say—they have no argument against me. So it must be a general catastrophe—the lords-magistrate have to silence everyone, don't they? *Nothing* can be left of this base. Perhaps they've quietly dislodged an asteroid or two and put them on course. In the guise of mining, perhaps they will silence this poor old world forever—myself and the rest of the relics. Lost relics and the distant dead are always safer to venerate, aren't they?"



"That's absurd!"

"Or perhaps they've become more hasty now that your ships are here and their judgment is in question. *They* have atomics within their capability, lord-navigator. They can disable your shuttle beam-fire. They can simply welcome you to the list of casualties—a charge of heresy. A thing taken out of context, who knows? After all—all lords are immediately duplicatable, the captains accustomed to obey the lords-magistrate—what few of them are awake—am I not right? If an institution like myself can be threatened—where is the fifth lord-navigator in their plans? All of a sudden those plans will be moving in haste.

Desan blinked. "Dr. Gothon—I assure you—"

"If you are my friend, lord-navigator, I hope for your survival. The robots are theirs, do you understand. Their powerpacks are sufficient for transmission to the station and the lords-magistrate. This room is safe from their monitoring. We have seen to that. They cannot hear you."

"I cannot believe these charges, I cannot accept it—"

"Is murder so new?"

"Then come with me! Come with me to the shuttle, we'll confront them—"

"The transportation to the port is theirs. It would not permit. The transportation AI would resist. The planes have AI components. And we might never reach the airfield."

"My luggage. Dr. Gothon, my luggage—my com unit!" And Desan's heart sank, remembering the service-robots. "They have it."

Gothon smiled, a small, amused smile. "O space-farer. So many scientists clustered here, and could we not improvise so simple a thing? *We* have receiver-transmitter. Here. In this room. We broke another. They're on the registry as broken. What's another bit of rubbish—on this poor planet? We meant to contact the ships, to call *you*, lord-navigator, when you came back. But you saved us the trouble. You came down to us like a thunderbolt. Like the birds you never saw, my space-born lord, swooping down on prey. The conferences, the haste you must have inspired up there on the station—if the lords-magistrate planned what I most suspect! I congratulate you. But knowing we have a transmitter—with your shuttle sitting on this world vulnerable as this building—what will you do, lord-navigator, since *they* control the satellite relay?"

Desan sank down on his chair. Stared at Gothon. "You never meant to kill me. All this—you schemed to enlist me."

"I entertained hope, yes. I knew your predecessors. I also know your personal reputation—a man who burns his years one after the other as if there were no end of them. Unlike his predecessors. What are you, lord-navigator? Zealot? A man with an obsession? Where do you stand in this?"

"To what—" His voice came hoarse and strange. "To what are you trying to convert me, Dr. Gothon?"

"To our rescue from the lords-magistrate. To the rescue of truth."

"Truth!" Desan waved a desperate gesture. "I don't believe you, I cannot believe you, and you tell me about plots as fantastical as your research and try to involve me in your politics. I'm trying to find the trail the Ancients took—one clue, one artifact to direct us—"

"A new tablet?"

"You make light of me. Anything. Any indication where they went. And they *did* go, doctor. You will not convince me with your statistics. The unforeseen and the unpredicted aren't in your statistics."

"So you'll go on looking—for what you'll never find. You'll serve the lords-magistrate. They'll surely cooperate with you. They'll approve your search and leave this world...after the great catastrophe. After the catastrophe that obliterates us and all the records. An asteroid. Who but the robots chart their courses? Who knows how close it is at this moment?"

"People would know a murder! They could never hide it!"

"I tell you, lord Desan, you stand in a place and you look around you and you say—what would be natural to this place? In this cratered, devastated world, in this chaotic, debris-ridden solar system—could not an input error by an asteroid miner be more credible an accident than atomics? I tell you when your shuttle descended, we thought you might be acting for the lords-magistrate. That you might have a weapon in your baggage which their robots would deliberately fail to detect. But I believe you, lord-navigator. You're as trapped as we. With only the transmitter and a satellite relay system they control. What will you do? Persuade the lords-magistrate that you support them? Persuade them to support you this further voyage—in return for your backing them? Perhaps they'll listen to you and let you leave."

"But they will," Desan said. He drew in a deep breath and looked from Gothon to the others and back again. "My shuttle is my own. *My* robotics, Dr. Gothon. From my ship and linked to it. And what I need is that transmitter. Appeal to *me* for protection if you think it so urgent. Trust me. Or trust nothing and we will all wait here and see what truth is."

Gothon reached into a pocket, held up an odd metal object. Smiled. Her eyes crinkled round the edges. "An old-fashioned thing, lord-navigator. We say *key* nowadays and mean something quite different, but I'm a relic myself, remember. Baffles hell out of the robots. Bothogi. Link up that antenna and unlock the closet and let's see what the lord-navigator and his shuttle can do."

"Did it hear you?" Bothogi asked, a boy's honest worry on his unlined face. He still had the rock, as if he had forgotten it. Or feared robots. Or intended to use it if he detected treachery. "Is it moving?"

"I assure you it's moving," Desan said, and shut the transmitter down. He drew a great breath, shut his eyes and saw the shuttle lift, a silver wedge spreading wings for home. Deadly if attacked. *They will not attack it, they must not attack it, they will query us when they know the shuttle is launched and we will discover yet that this is all a ridiculous error of understanding.* And looking at nowhere: "Relays have gone; *nothing* stops it and its defenses are considerable. The lords-navigator have not been fools, citizens: we probe worlds with our shuttles, we plan to get them back." He turned and faced Gothon and the other staff. "The message is *out*. And because I am a prudent man—are there suits enough for your staff? I advise we get to them. In case of accident."

"The alarm," said Gothon at once. "Neoth, sound the alarm." And as a senior staffer moved: "The dome pressure alert," Gothon said. "*That* will confound the robots. All personnel to pressure suits; all robots seek damage. I agree about the suits. Get them."

The alarm went, a staccato shriek from over head. Desan glanced instinctively at an uncommunicative white ceiling—darkness, darkness above, where the shuttle reached the thin blue edge of space. The station now knew that things had gone greatly amiss. It should inquire, there should be inquiry immediate to the planet—

# Absolute Magnitude

—Staffers had unlocked a second closet. They pulled out suits, not the expected one or two for emergency exit from this pressure-sealable room; but a tightly jammed lot of them. The lab seemed a mine of defenses, a stealthily equipped stronghold that smelled of conspiracy all over the base, throughout the staff—everyone in on it—

He blinked at the offering of a suit, ears assailed by the siren. He looked into the eyes of Bothogi who had handed it to him. There would be no call, no inquiry from the lords-magistrate. He began to know that, in the earnest, clear-eyed way these people behaved—not lunatics, not schemers. Truth. They had told their truth as they believed it, as the whole base believed it. And the lords-magistrate named it heresy.

His heart beat steadily again. Things made sense again. His hands found familiar motions, putting on the suit, making the closures.

“There’s that AI in the controller’s office,” said a senior staffer. “I have a key.”

“What will they do?” A younger staffer asked, panic edged. “Will the station’s weapons reach here?”

“It’s quite distant for sudden actions,” said Desan. “Too far for beams and missiles are slow.” His heartbeat steadied further. The suit was about him; familiar feeling; hostile worlds and weapons: more familiar ground. He smiled, not a pleasant kind of smile, a parting of lips on strong, long teeth. “And one more thing, young citizen, the ships they have are transports. Miners. Mine are hunters. I regret to say we’ve carried weapons for the last two hundred thousand years, and my crews know their business. If the lords-magistrate attack that shuttle it will be their mistake. Help Dr. Gothon.”

“I’ve got it, quite, young lord.” Gothon made the collar closure. “I’ve been handling these things longer than—”

Explosion thumped somewhere away. Gothon looked up. All motion stopped. And the air-rush died in the ducts.

“The oxygen system—” Bothogi exclaimed. “O damn them—!”

“We have,” said Desan coldly. He made no haste. Each final fitting of the suit he made with care. Suit-drill; example to the young: the lord-navigator, youngsters, demonstrates his skill. Pay attention. “And we’ve just had our answer from the lords-magistrate. We need to get to that AI and shut it down. Let’s have no panic here. Assume that my shuttle has cleared atmosphere—”

Well above the gray clouds, the horror of the surface. Silver needle aimed at the heart of the lords-magistrate.

—Alert, alert, it would shriek, alert, alert, alert— With its transmission relying on no satellites, with its message shoved out in one high-powered bow-wave. *Crew on the world is in danger.* And, code that no lord-navigator had ever hoped to transmit, a series of numbers in syntactical link: *Treachery; the lords-magistrate are traitors; aid and rescue—Alert, alert, alert—*anguished scream from a world of dust; a place of skulls; the grave of the search.

—*Treachery; alert, alert, alert!*

Desan was not a violent man; he had never thought of himself as violent. He was a searcher, a man with a quest.

He knew nothing of certainty. He believed a woman a quarter of a million years old, because—because Gothon was Gothon. He cried traitor and let loose havoc all the while knowing that here might be the traitor, this gentle-eyed woman, this collector of skulls.

*O Gothon, he would ask if he dared, which of you is false? To force the lords-magistrate to strike with violence enough to damn them—is that what you wish? Against a quarter of a*

*million years of unabated life—what are my five incarnations: mere genetic congruency, without memory. I am helpless to know your perspectives.*

*Have you planned this a thousand years, ten thousand?*

*Do you stand in this place and think in the mind of creatures dead longer than even you have lived? Do you hold their skulls and think their thoughts?*

*Was it purpose eight million years ago?*

*Was it, is it—horror upon horror—a mistake on both sides?*

“Lord Desan,” said Bothogi, laying a hand on his shoulder. “Lord Desan, we have a master key. We have weapons. We’re waiting, lord Desan.”

Above them the holocaust.

It was only a service robot. It had never known its termination. Not like the base AI, in the directors office, which had fought them with locked doors and release of atmosphere, to the misfortune of the director—

“Tragedy, tragedy,” said Bothogi, standing by the small dented corpse, there on the other sand before the buildings. Smoke rolled up from a sabotaged lifesupport plant to the right of the domes; the world’s air had rolled outward and inward and mingled with the breaching of the central dome—the AI transport’s initial act of sabotage, ramming the plastic walls. “Microorganisms let loose on this world—the fools, the arrant fools!”

It was not the microorganisms Desan feared. It was the AI eight-wheeled transport, maneuvering itself for another attack on the coldsleep facilities. Prudent to have set themselves inside a locked room with the rest of the scientists and hope for rescue from offworld; but the AI would batter itself against the plastic walls, and living targets kept it distracted from the sleeping, helpless clones—Gothon’s juniormost; Bothogi’s; those of a dozen senior staffers.

And keeping it distracted became more and more difficult.

Hour upon hour they had evaded its rushes, clumsy attacks and retreats in their encumbering suits. They had done it damage where they could while staff struggled to come up with something that might slow it...it lumped along now with a great lot of metal wire wrapped around its rearmost right wheel.

“Damn!” cried a young biologist as it maneuvered for her position. It was the agile young who played this game; and one aging lord-navigator who was the only fighter in the lot.

Dodge, dodge and dodge. “It’s going to catch you against the oxyplant, youngster! *This way!*” Desan’s heart thudded as the young woman thumped along in the cumbersome suit in a losing race with the transport. “Oh, damn, it’s got it figured! Bothogi!”

Desan grasped his probe-spear and jogged on—“Divert it!” he yelled. Diverting it was all they could hope for.

It turned their way, a whine of the motor, a serpentine flex of its metal body and a flurry of sand from its eight wheeled drive. “Run, lord!” Bothogi gasped beside him; and it was still turning—it aimed for them now, and at another tangent a white-suited figure hurled a rock, to distract it yet again.

It kept coming at them. AI. An eight-wheeled, flex-bodied intelligence that had suddenly decided its behavior was not turning and altered the program, refusing distraction. A pressure-windowed juggernaut tracking every turn they made.

Closer and closer. “Sensors!” Desan cried, turning on the slick dust—his footing failed him and he caught himself, gripped the probe and aimed it straight at the sensor array clustered beneath the front window.



*Thum-p!* The dusty sky went blue and he was on his back, skidding in the sand with the great balloon tires churning sand on either side of him.

*The suit,* he thought with a spaceman's horror of the abrading, while it dawned on him at the same time that he was being dragged beneath the AI, and that every joint and nerve center was throbbing with the high-voltage shock of the probe.

Things became very peaceful then, a cessation of commotion. He lay dazed, staring up at a rusty blue sky, and seeing it laced with silver thread.

*They're coming,* he thought, and thought of his eldest clone, sleeping at a well-educated twenty years of age. Handsome lad. He talked to the boy from time to time. *Poor lad, the lordship is yours. Your predecessor was a fool—*

A shadow passed above his face. It was another suited face peering down into his. A weight rested on his chest.

"Get off," he said.

"He's alive!" Bothogi's voice cried. "Dr. Gothon, he's still alive!"

The world showed no more scars than it had at the beginning—red and other where clouds failed. The algae continued its struggle in sea and tidal pools and lakes and rivers—with whatever microscopic addenda the breached dome had let loose in the world. The insects and worms continued their blind ascent to space, dominant life on this poor, cratered globe. The research station was in function again, repairs complete.

Desan gazed on the world from his ship; it hung as a sphere in the holotank by his command station. A wave of his hand might show him the darkness of space; the floodlit shapes of ten hunting ships, lately returned from the deep and about to seek it again in continuation of the Mission, sleek fish rising and sinking again in a figurative black sea. A good many suns had shone on their hulls, but this one sun had seen them more often than any since their launching.

Home.

The space station was returning to function. Corpses were consigned to the sun the Mission had sought for so long. And power over the Mission rested solely at present in the hands of the lord-navigator, in the unprecedented circumstance of the demise of all five lords-magistrate simultaneously. Their clones were not yet activated to begin their years of majority—"Later will be time to wake the new lords-magistrate," Desan decreed, "at some further world of search. Let them hear this event as history."

*When I can manage them personally,* he thought. He looked aside at twenty-year-old Desan Six and the youth looked gravely back with the face Desan had seen in the mirror thirty two waking years ago.

"Lord navigator?"

"You'll wake your brother after we're away, Six. Directly after. I'll be staying awake much of this trip."

"Awake, sir?"

"Quite. There are things I want you to think about. I'll be talking to you and Seven both."

"About the lords-magistrate, sir?"

Desan lifted brows at this presumption. "You and I are already quite well attuned, Six. You'll succeed young. Are you sorry you missed this time?"

"No, lord-navigator! I assure you not!"

"Good brain. I ought to know. Go to your post, Six. Be grateful you don't have to cope with a new lordship and five new lords-magistrate and a recent schism." Desan leaned back

in his chair as the youth crossed the bridge and settled at a crew-post, beside the Captain. The lord-navigator was more than a figurehead to rule the seventy ships of the Mission, with their captains and their crews. Let the boy try his skill on this plotting. Desan intended to check it. He leaned aside with a wince—the electric shock that had blown him flat between the AI's tires had saved him from worse than a broken arm and leg; and the medical staff had seen to that: the arm and the leg were all but healed, with only a light wrap to protect them. The ribs were tightly wrapped too; and they cost him more pain than all the rest.

A scan had indeed located three errant asteroids, three courses the station's computers had not accurately recorded as inbound for the planet—until personnel from the ships began to run their own observations. Those were redirected.

Casualties. Destruction. Fighting within the Mission. The guilt of the lords-magistrate was profound and beyond dispute.

"Lord-navigator," the communications officer said. "Dr. Gothon returning your call."

*Goodbye,* he had told Gothon. *I don't accept your judgement, but I shall devote my energy to pursuit of mine, and let any who want to join you—reside on the station. There are some volunteers; I don't profess to understand them. But you may trust them. You may trust the lords-magistrate to have learned a lesson. I will teach it. No member of this mission will be restrained in any opinion while my influence lasts. And I shall see to that. Sleep again and we may see each other once more in our lives.*

"I'll receive it," Desan said, pleased and anxious at once that Gothon deigned reply; he activated the com-control. Ship-electronics touched his ear, implanted for comfort. He heard the usual blip and chatter of com's mechanical protocols, then Gothon's quiet voice. "Lord-navigator."

"I'm hearing you, doctor."

"Thank you for your sentiment. I wish you well too. I wish you very well."

The tablet was mounted before him, above the console. Millions of years ago a tiny probe had set out from this world, bearing the original. Two aliens standing naked, one with hand uplifted. A series of diagrams which, partially obliterated, had still served to guide the Mission across the centuries. A probe bearing a greeting. Ages-dead cameras and simple instruments.

*Greetings, stranger. We come from this place, this star system.*

*See, the hand, the appendage of a builder—this we will have in common.*

*The diagrams: we speak knowledge; we have no fear of you, strangers who read this, whoever you be.*

Wise fools.

There had been a time, long ago, when fools had set out to seek them...in a vast desert of stars. Fools who had desperately needed proof, once upon a quarter million years ago, that they were not alone. One dust-scoured alien artifact they found, so long ago, on a lonely drifting course.

*Hello,* it said.

The makers, the peaceful Ancients, became a legend. They became purpose, inspiration.

The overriding, obsessive *Why* that saved a species, pulled it back from war, gave it the stars.

"I'm very serious—I do hope you rest, doctor—save a few years for the unborn."

"My eldest's awake. I've lost my illusions of immortality, lord-navigator. I hope to spend my years teaching her. I've told her about you, lord-navigator. She hopes to meet you."

# Absolute Magnitude

"You might still abandon this world and come with us, doctor."

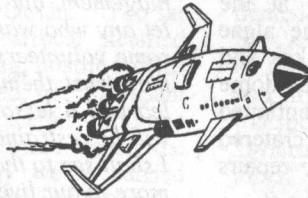
"To search for a myth?"

"Not a myth. We're bound to disagree. Doctor, doctor, what good can your presence there do? What if you're right? It's a dead end. What if I'm wrong? I'll never stop looking. I'll never know."

"But we know their descendants, lord-navigator. We. We are. We've spread their legend from star to star—they've become a fable. The Ancients. The Pathfinders. A hundred civilizations have taken up that myth. A hundred civilizations have lived out their years in that belief and begotten others to tell their story. What if you should find them? Would you know them—or where evolution had taken them? Perhaps we've already met them, somewhere among the worlds we've visited, and we failed to know them."

It was irony. Gentle humor. "Perhaps, then," Desan said in turn, "we'll find the track leads home again. Perhaps we are their children—eight and a quarter million years removed."

"O ye makers of myths. Do your work, space-farer. Tangle the skein with legends. Teach fables to the races you meet. Brighten the universe with them. I put *my* faith in you. Don't you know—this world is all I came to find, but you—child of the voyage, you have more. For you the voyage is the Mission. Goodbye to you. Fare well. Nothing is complete calamity. The equation here is different, by a multitude of microorganisms let free—Bothogi has stopped grieving and begun to have quite different thoughts on the matter. His algae-pools might turn out a different breed this time—the shift of a protein here and there in the genetic chain—who knows what it will breed? Different software this time, perhaps. Good voyage to you, lord-navigator. Look for your Ancients under other suns. We're waiting for their offspring here, under this one."



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# The Letters Page

Dear Mr. Lapine,

In an odd case of synchronism, I recently came across notations regarding *Harsh Mistress* in *Science Fiction Writer's Market Place and Sourcebook* and in Issue #53 of *Factsheet five*, I had written in to express an interest, but with constant moving and travel and so on, I suppose I must have missed your reply. Given all these recent coincidences, however, I can only assume that the Fates wish me to become a subscriber to *Harsh Mistress*, and who am I to deny their whim?

I love adventurous SF (AKA space opera), and if I have to read one more cyberpunk (except Sterling's *Heavy Weather*, which isn't too bad) or fantasy dressed up as SF, I do believe I will have to Get Away From It All. Please, save another SF fan from a fate worse than death!

Thanking you in advance for your help.

Randy Barnhart  
Ontario, Canada

Dear Mr. Lapine,

I have always thought something was missing in the mainstream SF magazines, and when I read *Absolute Magnitude* #1 I saw what it was. Keep up the good work and high quality.

Sincerely,

Christine LaBarge  
Mt. Pleasant, MI

Dear Mr. Lapine,

After reading issue number two, I realize I just don't write the SF you publish. That's too bad because I really appreciated the comments you and your associates gave on my submissions.

I should've gotten a sample copy right at the beginning. I won't make that mistake again.

I also realize how good you guys are because my submissions were totally inappropriate yet you always commented personally, never gave me form rejection "Not for us."

I'll never be a high-volume SF writer because I divide my time between short stories and screenplays. A veteran screenwriter once wrote that a screenwriter shouldn't just write screenplays. He was right. One helps me be better at the other, especially in dialogue and getting to the point quickly.

I was glad I got the sample copy and could read about your getting into the publishing business. It tells me that many barriers only

exist in the mind.

I needed that because Everyone keeps saying how hard it is to crack Hollywood. I guess it's true that to succeed there you need both talent and a bit of brass. (You guys can relate to that.)

Anyway, thanks much and I hope you keep going as long as you find it fun.

Sincerely,

Robert Huck  
Skokie IL

Dear Warren,

Your new issue arrived two days ago and I am pleased to see that your mix of a variety of stories, short and longer, with a varied background, is being given an opportunity to win the approval, or thumbs down, of your readers. The old *Astounding*, while fighting for first place in the SF market, offered a menu that could please and educate readers at the same time. Later, after *Analog* took over, we got mainly *hard* SF. Most readers crave a balance of entertainment and thinking; adventure and offtrail have a place, as well as serious consideration of future possibilities.

Best,

Basil Wells  
Keystone Heights, FL

Dear Warren,

Whatever you paid Eggleton, he's worth it. That's a beautiful cover on issue #2. And the interior illos are great. In fact, I'm just plain proud to be a part of this issue. thank you for putting out such a great magazine.

I was so impressed by the magazine that I took yesterday off and read it cover to cover. Not a clunker in the bunch, and the C.J. Cherryh story was a gripper. she's wonderful at reaching down to those inner emotions and stirring them around and round until the characters literally squeak with tension. I really enjoyed "Scapegoat," and I'm looking forward to more from Cherryh in the next issue.

Once again, thanks for building such a wonderful magazine and thanks for making me a part of it.

Sincerely,

Gene KoKayKo  
Cambria, CA

Dear Warren,

I was out of town when the Spring 95 issue of *Absolute Magnitude* arrived, so I've only just got it now.

I am exceedingly impressed. The new name is certainly an improvement over *Harsh Mistress*, and I especially like the all-important logo, which is in a typeface that's easy to read and which suits the mood of the contents. The interior layout is excellent, as are the contributions by the various authors and artists. Again, I'm impressed, and I certainly intend to submit further work to your publication.

Rock on,

F. Gwynplaine MacINTYRE  
The Mind that Wants Jump-Starting  
New York, NY



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Steele

Shares a new Near Space story with us in *Working For Mister Chicago*.

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Explores the dilemmas of growing up in the far future in her new story *Mice*.

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better than this—  
See you next issue!

