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"Revealing the Secrets of Mars" by Nadine G. Barlow Ad Astro-the magazine of the National Space Society July/August 1998.

RAINBOW MARS.

+390 Atomic Era. Svetz was nearly home, but the snake was waking up.

Gravity pulled outward from the center of the extension cage as it was pulled toward present time. The view through the wall was a jitter of color and motion. Svetz lay on his back and looked up at the snake. A filter helmet showed only as a faint golden glow around its head. It wouldn't strangle on post-Industrial air, and it couldn't bite him through the inflated bubble.

A ripple ran down the feathers along its spine, a gaudy flurry of color, nine meters from head to tip of tail. It seemed to take forever. Tiny rainbow-colored wings fluttered at its neck. Its eyes opened.

The natives of - 550 Atomic Era would have carved his heart out without losing that same look of dispassionate arrogance.

Svetz/ raised the noodle rifle.

A loop of it shimmied aside as he fired. The anesthetic crystal needle shattered on the wall. The shimmy ran down the tail, while Svetz fired again and missed again. Then the tailtip snapped down and flicked the needle gun out of his hands.

Svetz cringed back.

The rainbow-feathered head lifted to study him.

+1108 Atomic Era. Watery colors around the cage took on shapes. For an instant Svetz saw startled techs, and Ra Chen yell-tig. Then the snake fell over him in coils, knocking the breath out of him. Coils constricted around his torso. He wriggled an arm free and reached for the needle gun, but a loop of tail coiled around his wrist.

Immobile, he looked into the ophidian face.

The hatch opened. Techs played sonic handguns along the snake's length. It went limp. Hillary W. ...

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The hatch opened. Techs played sonic handguns along the snake's length. It went limp. Hillary Weng-Fa and Wilt Miller pulled Svetz out of the X-cage and looked him over. Other techs coiled the torpid snake on a lifter platform for transport to the Secretary-General's Vivarium.

Wrona pushed past Chairman Ra Chen to lick Svetz's face, Svetz hugged her. The touch of fur was a comfort.

“Feathers,” Ra Chen said. “Futz. Are you all right?”

“Fine. Sir, I think it decided not to kill me. Treat it right.”

“The picture book didn't show feathers.”

“There must be more than one kind of snake,” Svetz said. “The locals worshipped this one. I'll bet the SecGen loves it.”

“They'll find something else to worship. Svetz-” Ra Chen's words stuck in his throat.

“Sir?”

“Waldemar the Tenth is dead.”

“Long live the Secretary-General.” Then his fatigue-blurred mind caught up. “Wait, now. The natives were ready to

cut my heart out for that snake, and now we don't need it?"

Ra Chen sighed. Svetz babbled, "Or do we? Who's the next Secretary-General? Does he like animals?"

"That's being settled, I don't doubt. Take Wrona home. Get some sleep. Everything goes to hell when power changes hands."

PART ONE.

"If only we had a time machine!"

Chapter 2.

Willy Gorky's coming was announced. The Institute for Temporal Research had two hours to prepare.

The atmosphere as Svetz arrived was low-intensity frantic. Hum of techspeak, hum of power, three techs swearing

quietly over yellow lights on a display. Some looked up from the Guide Pit as he and Wrona passed. Nobody particularly wanted to talk to Hanville Svetz, but Wrona was still a curiosity.

The Director saw Svetz in a corner quietly eating a bowl of dole yeast. He said, "Get the dog out."

Svetz nodded and stood. He rubbed Wrona between her ears. "Home," he told her, and turned back toward the door. She laughed with her tongue lolling.

"Home, my ass," Ra Chen bellowed. "I need you here!"

"Make a decision, Boss."

Ra Chen took two seconds to think. Wilt and Hillary both got along with

Wrona, but Svetz could see both techs on duty in the Pit. They couldn't take her. The Zoo dogs fought with her.

“The dog stays. Good idea anyway. We'll have something to show Gorky.”

“Yes sir. Why are we showing off for Willy Gorky?”

Ra Chen looked toward the Guide Pit. It looked impressive, and busy. He said, “Waldemar the Tenth liked extinct animals. Waldemar the Eleventh likes planets and stars, they say, and he's not a mental deficient.”

Svetz flinched. Nobody would have dared to use that term when Waldemar the Tenth was Secretary-General!

A whisper of wind from outside: limousines setting down in the drive.

“The Institute for Temporal Research has been transferred from Bureau of History to Bureau of the Sky Domains—that's the new title for Space Bureau. Willy Gorky's the Director. He's our new boss. Are you ready for that?”

Svetz smiled sourly. 'Time will tell.'

Four Space Bureau guards flitted through the Center examining everything. One of them appeared ready to shoot Wrona. As Svetz stepped in front of her he found Ra Chen and Zeera at his elbows.

The guard listened to Svetz's assurances, but he was looking at Wrona. Wrona looked back. On command she sat, then lay down, snout on paws.

'Tie her up," the bodyguard said, and turned away.

"We will do no such thing," Ra Chen said.

The guard froze, then kept moving. Discussion must have taken place outside.

Willy Gorky entered with three more of his entourage. He was Svetz's height, centimeters shorter than Ra Chen, but thick through the torso, arms and legs. He was half again Svetz's weight.

"Ra Chen, a pleasure to see you again! Lovely pond," he said.

He meant the rectangular pool outside. Ra Chen said, "It's not an extravagance. When we're pulling an X-cage home we need somewhere to dump the heat.

Otherwise expensive parts melt.”

Svete's impression was that Gorky barely heard him. He bestowed a wonderful smile on one and all and shook their hands. Svet2 felt bone-breaking strength held dormant Wrona offered her paw. Gorky didn't notice. He was looking into the Guide Pit.

The Guide Pit was inside a knee-high wooden wall, symbol rather than barrier. There was room for five to sit and work the instruments that guided extension cages into the past. From here the Institute could run both X-cages at once, though that was rare. Gorky must have heard descriptions. It was the heart of the Institute, and now it was his.

Two men with him wore tech

uniforms, white coats lined with a score of bulging pockets, scanner sets on their heads. The woman wore something else, a loose one-piece, brilliantly patterned and covered with zipped pockets. She was an inch shorter than Svetz, and slender, topped with two centimeters of ash-blond fuzz.

She came straight to Svetz, or maybe to Wrona. None of Bureau of the Sky Domains seemed to know how to treat Wrona. They'd never seen a dog.

"I'm Miya Thorsven," she said, smiling at them both.

"Hanville Svetz, pleased to meet you. You're an astronaut?"

"Yes. And your... companion is a visitor from the past?"

“Somebody else's past. Wrona's people evolved from wolves. The X-cages sometimes veer sideways in time when they're coming home. It's a quantum mechanical thing,” Svetz said as if he understood it.

“Why does she look so much like Dog?”

“You've been in the Vivarium?”

“Not yet. There's a web site that has holograms.” Miya looked wistful. 'Tour achievements are wonderful.’”

Svetz had captured most of the Vivarium's animals. He preened.

She asked again. “Dog?”

“Dogs never went extinct. They're contemporary. If you think of a dog as a wolf that's been civilized, then

intelligent beings civilize each other. Intelligent wolves must have done that too.”

Miya nodded happily, and Svetz thought how strange it was to be lecturing an astronaut on nonhuman intelligence. He asked, “Have you met aliens?”

“No,” she said.

“How far have you been?”

“Mars.”

“Only Mars?”

Space Bureau techs were examining the Center and talking to the Institute techs on duty. The ITR techs were reluctant to answer. They looked to Ra Chen. Ra Chen and Willy Gorky ignored them all.

They were both hand wavers. Svetz saw Ra Chen's arms sweep around him to include the entire Center. Gorky stopped talking then. So did Miya Thorsven. She looked to her boss, and her worry mirrored his.

Gorky spoke briefly, gathered his entourage and left.

The Center's personnel gathered around Ra Chen.

“Good news and bad,” he said. “The Center really could be shut down. Gorky wants to save us, he says-” Ra Chen ignored the collective cynical sigh. “His ass is on the line too. He wants to talk. He'll bring a man, I'll bring a man.”

“You, Svetz. Don't bring Wrona. Zeera, can you keep things going here?”

Zeera Southworth scratched Wrona behind the ears. “You and me,” she told the dog.

Chapter 3.

I always knew that I would see the first man on the Moon. I never dreamed that I would see the last.

-Dr. Jerry Pournelle Waldemar the Fourth had liked flowers. Green Resources Bureau had saved him a few for the garden path that led to the World Globe.

Chair Gorky walked with Miya Thorsven, a few meters ahead of Ra Chen and Svetz. Their voices were relaxed tones too low to make out.

Six kinds of orchids lived on vertical slabs of plant nutrient. Labels floated

beside them, and followed where the wind moved the flowers: holograms projected into a visitor's eyes. The roses weren't doing well, but mutations made for marvelous variety. Broccoli, Brussels sprouts, Artichoke: virtual labels said that some had considered these plants edible- "Svetz!"

Thorsven and Gorky had reached the World Dome; but Svetz delayed. He'd never had a chance to linger here. "Boss, do you want to convey your sense of urgency to Chair Gorky?"

'Tour point?"

"You told me once, never negotiate under a deadline. We're the masters of Time."

Ra Chen's head jerked once: yes.

“What are you looking at?”

Svetz was watching minuscule motion on a leaf. Caterpillar, the virtual label said. It had too many legs to count. Svetz watched it bend double to cross from one side of a tattered leaf to the other.

The World Globe was new: Waldemar the Tenth's last construction project. The whole Earth was projected onto the interior of a globe, updated every few minutes with data from myriads of weather satellites. A walk with no railings led through the Globe. It was large enough that Svetz couldn't tell its size.

Miya Thorsven and Willy Gorky walked ahead of them. Miya glanced back. “Point out something interesting,”

Ra Chen said, "or else get moving."

"It's like looking at the Earth from inside, isn't it? Boss, have you spent a lot of time in the garden and the Globe? / never took enough advantage of the perks. This could be our last chance."

"It could, couldn't it?"

Miya dropped back and engaged Svetz in conversation. Ra Chen took it as a hint and caught up with Gorky. Oddly lit by the white glare of ice caps above and below, and a whorl of hurricane over the Pacific, the Heads of Space and Time walked ahead of their aides. They talked like old friends who hadn't met in some time: cordial and a little cautious.

Svetz heard a little of that. Gorky speaking: "I've always been sure that the

Earth will need to be terraformed. More nuclear power, or orbiting solar power arrays-”

‘Too late, Willy. Those forms of power don't leave residues, not even oxides of nitrogen and carbon. You stop putting that stuff in the atmosphere, people will stop breathing!’”

“Do it earlier? Time machine ...”

The World Globe was big. Svetz looked down at Antarctica and wondered how far he would fall. The height didn't bother Miya. He suppressed a sigh when he and Miya reached the far end.

The Zoo-Vivarium-had been a favorite place to Waldemar the Tenth, forty-first Secretary-General to the

United Nations. Of course it was supervised. Bureau of History cameras were hidden everywhere. But any spy or media camera found here would carry a death penalty.

The Heads would have privacy from all but their own people.

Gorky noticed nothing but the dominance game he was playing with Ra Chen. Miya's eyes danced left, right, further, back. Owl. Horse. Snake watched Svetz pass. Svetz bowed. Snake nodded its regal, brilliantly feathered head.

Here a cage was torn open as if some monstrous bird had hatched from it. Two down was another, its shredded roof bowed inward. Ostrich. Elephant.

Horse's head came up when Miya walked past. It glared at Svetz along its fearsome spiral horn, and Svetz stepped away from Miya Thorsven without quite knowing why.

Gorky asked, "Have you done anything about replacing Elephant?"

He knew what the torn cages meant!

Ra Chen answered, "We had a pickup mission planned. Sir, what's our budget like?"

"Call me Willy."

"In public too?" asked Ra Chen.

"Please. Now, I can keep us going for a year, Bureau of the Sky Domains and anything connected with Space. You can have anything you can convince me you need. Saving money won't help us.

Keeping the time machine in repair, that would be normal maintenance. Another elephant, another ostrich ... well, why?"

"Elephant can wait," Ra Chen agreed, and Svetz smiled. He had not looked forward to trying to get another elephant into the big X-cage.

"My thought is, extinct life-forms can wait! They aren't going anywhere," Gorky said. "On a legitimate mission, sure, bring home anything you like. We decide what's a legitimate mission."

Ra Chen said, "Waldemar the Ninth wanted videos of Jack the Ripper, John F. Kennedy, Ted Bundy-"

"Who?"

"Crime scenes. Executions. We hadn't built the extension cages yet. We

mounted a vidcamera on the end of a boom and pushed it far enough into the past to record the Nicole Simpson murder. Gah! We can record anything we have exact time and location for. We got some famous riots. Then the machinery glitched up and we were off-line for two years. Waldemar Nine would have shut us down if he hadn't died first.

“Waldemar Ten wanted animals. Waldemar the Eleventh wants planets and stars, they say... ?” Ra Chen waited for Gorky's nod. “Willy, I don't know how a time machine can give you that.”

“I thought I did.” Gorky turned the sudden force of his glare on Svetz. “Hanville Svetz, isn't it? Svetz, none of

this is to be spread around. Do you know what I mean by FTL?”

Svetz thought he did. “You need to go faster than light to reach any star while any one SecGen is in power.”

“Faster-than-light is fiction.”

“Fiction.” Huh?

“Waldemar the Tenth was like a bright child. I said I could get us to the stars, and he believed it. Ra Chen, those books you rescued from California saved our butts. We used the science fiction as source material. We mocked up computer-generated landscapes and cities from other worlds, and aliens too. He believed all of it. But Waldemar the Eleventh won't. Our real power is pitiable.”

Ra Chen could have dismantled the Bureau of the Sky Domains if he'd known that a year ago. A time machine could fix that! Svetz saw all that in Ka Chen's eyes, and saw him shrug it off. Ra Chen said, "Beware of wishes granted, Willy."

"I know. A bright SecGen who really wants stars! I thought I could use the Institute to get him that," Gorky said.

Miya Thorsven half whispered to Svetz, "Dominance games." "I've watched a lot of this," Svetz said. "Director Gorky swallowed up Ra Chen's department. Would Ra Chen help him justify that?"

Svetz told her what he thought Ra Chen would want her to hear. "If Ra

Chen couldn't protect what he had, there's no point in asking for it back. If Gorky loses, the SecGen is likely to dismantle Time and Space and start over with relatives as his Chairs.” Gorky was saying, “We haven't sent anything bigger than a bedsheet to the stars, but we've had the planets for a long time. Hibernation and an ion-fission drive took a crew of five to Jupiter. That technique would take us anywhere, given time. We could build another Jupiter ship and fire it at Four-four, if we had the time.”

“Four-four?”

“51 Pegasi 4-4, fourth moon of the fourth planet, is as close as we can find to another Earth for hundreds of light-

years. Only, if s early Earth. Reducing atmosphere. We've never found an oxygen world.

“So. Send a drone package to 51 Pegasi. Move back in time by as long as it takes. A thousand years? A billion?” Gorky brushed aside their attempts to interrupt. “Algae in the atmosphere starts the terraforming process. Add higher life-forms before anything competitive can evolve.

“Now launch a manned ship. A hundred years to 51 Pegasi, we can manage that. We find Earth's twin waiting for us! Drop a hundred and eight years into the past. Phone home. The laser takes eight years to reach Earth from Four-four. It gets there a month

after the ship leaves, or a week. Ra Chen, I take it that won't work.”

Ra Chen was openly laughing. “I'd be all day telling you what's wrong with that. Willy, did you ever think of asking?” “I thought you'd wind up owning me if I asked favors from the Institute for Temporal Research,” Gorky said.

Svetz thought he was probably right, but Ra Chen chortled. “You see it, Svetz? He thought the extension cages were the time machines!”

“Ah.” Svetz told Gorky, “No sir. The time machine is under the Center. The whole Center is just the top, like a lid on a jar, with a twisty folded-over quark accelerator underneath. The X-cage is

only the part that moves.”

Gorky asked, “What's its mass?”

Svetz didn't know.

“Three million eight hundred thousand tons,” Ra Chen said with some satisfaction. “Under Waldemar Eight and Nine we built it all as a laboratory. After we got it working we built over it to make the Center.”

“How much could you shrink it? Unlimited budget. We're only talking, now.”

“How much mass can you put into orbit, Willy?”

“With the new heavy lifters, four thousand tonnes each flight.”

“Forget that,” Ra Chen said.

‘You've been running a gigantic hoax,’

Svetz said. He missed Gorky's fury and Ra Chen's disapproval while he chewed new data. "What have you got? Willy, sir, what have you really got? Cities on the Moon? Mars? Asteroids?"

"Moon and Mars," Miya said. "Mars is just twenty people. Luna City is two thousand, I think, but buried, not much to see. The glass domes we showed Waldemar Ten came out of a computer."

"Anything on the asteroids?"

"Some automated mining projects that broke down. One day we'll get it right," Miya said. "Mine the asteroids for metal. Put all the factories in orbit--"

Svetz waved it off. "Heavy lifter?"

Gorky said, "We're building it. We're building four. I could ask for forty now,

but I'd have to justify the expense eventually.”

“Will the Secretary-General wait?”

Gorky's jaw set hard. “He'll wait for Divine Image. A year at least. Do you know what a Von Neumann device is?”

Both men shook their heads. Miya Thorsven lit up. “It's a machine no bigger than your two hands that makes more of itself! It's called Michelangelo. I worked on the Divine Image Project. Michelangelo mines the Moon and makes more Michelangelos and piles the slag along the Earth twilight rim. The numbers double over and over. In a year and a bit we'll have trillions of Michelangelos! They're carving the near face of the Moon into an image of

Waldemar the Eleventh!”

Svetz gaped. Gorky murmured, “Resculpted from Waldemar Tenth, of course.”

Ra Chen said, “Ambitious. If you're processing that much Moon, you could bake oxygen out of the slag too. You'd wind up with an atmosphere.”

Gorky laughed and clapped a big hand on Ra Chen's shoulder, hard. “Right. Right!”

“Doubling rate?”

“Week and a bit-”

“But you get all your action near the end, don't you? For this next year there's nothing to be seen from anywhere on Earth... ? Just videos of any number of your little mining things crawling over

Moon rock.”

“Yes.”

“He bought it?”

“He did.”

Miya was looking at Gorky in shocked disappointment. Gorky said, “I’m sorry, Miya. After you came back to Earth, some of the Michelangelos were chewing rock in the wrong places. Others got blocked up, or made junk, or just quit. We’ll keep fiddling.”

He turned back to Ra Chen. “But a year from now we’ll have to show the little buggers operating, or else have something to show him, or else I’d better retire to the Moon. That’s real. There’s been a city in Clavius Crater since before there were Waldemars. Six

hundred years.”

Svetz said, “Moon and Mars. Anything else?”

“Rovers! We've got toy boxes crawling over every planet and moon in the solar system, hundreds of asteroids and scores of comets, taking pictures and samples. We've sent Forward probes past more than forty stars, with more on the way, Svetz, but the Forward devices are just silver blankets made of computer elements and launched by light pressure. Enough laser power to cremate a city in ten minutes,” Gorky said, watching to see if Ra Chen would flinch. “Firing for ten weeks.”

“The lasers, they're on the Moon?”

“Yes.”

“So you've got the Moon, and everything else is smoke and mirrors?”

“There's Mars Base One. Twenty men and women and some VR sets to control a thousand Rovers, Pilgrim model. I built it on the equator. I was hoping we could experiment with advanced lifting systems. Orbital towers. Maybe a Pinwheel. We never got that far. Too expensive. Even life support for cosmonauts is too expensive.”

Ra Chen said, “But now you've got a time machine.”

“And if I can't use the Institute, I'll have to break you up and sell the parts for what I can get.”

Ra Chen didn't seem surprised. “You'd get nothing but scrap prices.”

“How much do you spend just keeping the Center going? I'd save that much. It wouldn't save either of us, of course.”

Chapter 4.

On the other side of its glass wall, fifty feet of short-legged lizard half uncoiled, lifted its head high above them, and spat fire along the glass. Gorky and Ra Chen didn't appear to notice. Miya stared up at the beast in awe and wonder.

“We should change the label on this,” Svetz said, “now that Waldemar the Tenth is dead.”

“Isn't it a Gila monster?”

“No. I found him in another picture book, after I caught him. Dragon!”

“You caught-”

She cut herself off because Gorky was speaking. "You can change the past."

"That's scary stuff, Willy! We've done that once or twice by accident," Ra Chen said. "Anyway, what would you change?"

"Right after the first use of a thermonuclear bomb, there were experiments with thermonuclear rocket motors in North America Sector. We've got nuke rockets now. We could leave designs on some lab table in the Industrial Age for the locals to copy."

"Why bother? Like you said, you've got them already."

"But they had the wealth. Ra Chen, if they'd had nuke rockets then, they could have built an orbital solar power system

for what they spent on cosmetics! With ten years to work, and for no more than the price of perfumes and lip goo and stuff to shape their hair into topiary, they'd have had free power from the sky and a fleet of spacecraft left over at the end!

“Now we're living too close to the edge. Too much farmland turned to dust and blew into the sea over the centuries. Too little sunlight gets down to us through the industrial goo. Today that same price would buy about ten million lives. People starve, or they freeze in the dark, when Bureaus divert power from the cities. We lose thousands of lives when we launch a Forward probe, and those are cheap. The Industrial Age, then

was when we should have moved. They put twelve men on the Moon and then went home for four hundred years!”

“I know considerable about the Industrial Age,” said Ra Chen. “I’ve been in it. Hundreds of millions of people with thousands of insanely different lifestyles, all of ‘em eleven hundred years dead. You’d have to get that kind of a mob moving all in one direction to persuade them to put a permanent base on the Moon instead of using perfume and lip goo and soap ... and sunblock, which isn’t just a cosmetic. Are you really that persuasive, Willy? Go ahead, persuade me. But tell me this first. If you did change the past, how would you get the credit? The

SecGen's memory would change too. You'd have nothing to show but a huge bill for electricity.”

“You thought of it too?”

Ra Chen barked laughter. “Everyone thinks of changing the past! If it weren't for temporal inertia we'd have exterminated ourselves once already, remember, Svetz? And maybe other times he never told me about.”

Miya was gaping, and Svetz grinned at her. Gorky must know the story already, if he knew about the torn cages.

Ra Chen said, “Willy, eleven hundred years ago you had thousands of ancestors. What if you do something to separate any two of them at the wrong time? You might edit yourself out. Or

edit me out and find yourself stranded in the past.”

Gorky said nothing.

“The new Secretary-General wants the solar system. You know it could be worse. Any slip you make anywhere in the past, you could wind up with no time machine and a SecGen who collects torture devices.”

“All right,” Gorky said, “no changes.”

They walked in silence for a bit “Everything interesting happened eleven hundred years ago,” Willy Gorky said. “Industry exploded across the world. Human numbers went into the billions. Highways and railroads and airlines webbed the planet. All the feeble life-forms went extinct, but ideas boiled!

There was every kind of scheme for the conquest of Space. Antimatter rocket engines, antigravity, solar sails, hundreds of tether designs, the Forward probes, Orion spacecraft, and a thousand things that didn't work but aren't genetically impossible.”

Ra Chen mused. “Lost secrets?”

“Why not? The space elevator, that notion came from a country that was still medieval!”

“Space elev-?”

“You know what I'd like to do with Mars? Use the planet as a test bed. Terraforming experiments, of course. Build a space elevator too. Build all of the skyhook launch schemes, all the ways of getting to orbit without rockets.

They all have that much in common. They're all dangerous! Huge potential energies involved. You could build them all cheaper, in miniature, because Mars has low mass and a high spin. Try them on Mars, where they can't hurt anyone!

“The Industrial Age is over, the world isn't rich anymore, and we can't afford to experiment. But what have we forgotten? What miracles could we find by raiding old libraries? If you search through two thousand years of the past you're bound to find something.”

“Finding it is the problem,” Ra Chen agreed. “I built the big X-cage to raid the Library of Alexandria before Julius Caesar torched it. It turns out that we can't reach back that far. But we got to

the Beverly Hills Library in plus-sixty-eight Atomic Era! We scooped it all up just before the quake and the wave. Why don't you set some of your people searching through those old books?"

"I will. What about the Pentagon or the Kremlin? They must have had interesting stuff--"

"Secrets. Locked up, hidden and guarded. Willy, it's a mistake to think of armed men as dead."

The albino whale in its huge tank turned sideways to focus one tiny eye on Svetz. Whale looked better than he had after the capture. The broken harpoons were gone, scars starting to heal.

Gorky rubbed his eyes. "I'm just getting used to thinking in terms of time.

We're still just talking, right?"

"R-"

"Aliens, I promised aliens to Waldemar Ten. Waldemar Eleven expects them too. Can your time machines find weirder animals than this?"

"Amazing beast," Ra Chen said. Whale's eye turned to look at him.

"We could have billed it as alien. From Europa, maybe."

"Willy, is there a chance at real aliens?"

"We haven't found life anywhere."

"Mars?"

"Long ago. There's fossil bacteria in Martian rocks dating from half a billion years ago. It's very primitive stuff, Ra

Chen. Mars had seas and a reasonable atmosphere for less than a billion years, and maybe what we found evolved then. Or maybe it all evolved on Earth and got to Mars embedded in a meteor. Not an alien at all.”

“Mars had life later than that,” Miya said.

They turned toward her. Svetz caught Gorky's indulgent smile.

Miya didn't. “There was life on Mars. There was civilization!

We have sketches made from telescope observations and descriptions from old astronomers, Schiaparelli and Lowell and Burroughs. Hundreds saw channels running across Mars, too straight to be anything but artificial!

“And it all disappeared over the next sixty years, before the first probes reached Mars. The probes found river valleys, but they were dry. Craters everywhere. Almost no atmosphere, nothing left of the water system. Nothing left of the water. High cirrus, and frost at the poles.”

Willy Gorky told her gently, “A lot of these discoveries were made through the Lowell telescope in Arizona. Have you ever looked through a telescope at Mars?”

Miya shook her head. “I’ve never looked through a telescope.”

“Most astronomers don’t. Miya, dear, Lowell’s telescope didn’t have camera attachments. Eyeballs! Everything was a

blur. That was the period when they decided Mercury was like the Moon, one face always to the Sun. They were drawing one face of the planet onto the other and didn't notice! Those canals—" He was talking to the back of her head now. 'Tired eyes want to connect the dots. We've never found anything on Mars.'

Watching her defeated expression, Svetz asked, "What if she's right?"

Willy Gorky laughed out loud. "Svetz, what do you know about other planets? Miya, you dug in those old river valleys! What did you find? Microscopic traces that might have been bacteria? Nothing else?"

"No, nothing," Miya admitted. Her

cheeks flamed. Her grip on Svetz's hand felt like desperation. "But we haven't searched the thousandth part of Mars!"

Svetz said, "We've found some amazing surprises in the past. Miya? Did this all disappear just as we were going into the Industrial Age?"

"That's right."

Svetz threw up his hands. "If only we had a time machine!"

Chapter 5.

Single-minded as a spider, Lowell built his own observatory to map them and spun a whole theory from the web of lines that he created. -William K. Hartmann, Mars Underground, 1997 It should have been just that simple.

"I want to see martian civilization at

its height,” Willy Gorky told them. “No, futz, we could get pictures like that from a computer! Ra Chen, show me video of Martians holding a funeral, then I’ll send a team there to dig up the tomb in present time. K you’re right, Miya. If there’s a civilization. But if you could find anything alive ... anything alien would get the SecGen off our backs for a long time. Svetz, a martian tool would do, or an animal. We’ve brought back soil samples from every large body in the solar system.”

To the left of the armory door was a cluster of chairs and little tables, and a drink and dole yeast dispenser. Svetz sipped coffee and waited ... but Ra Chen had developed the habit of letting Svetz

deliver bad news.

So be it. Svetz told Willy Gorky, “We can't move an extension cage to Mars. The reach isn't there. There's no way to match velocities either.”

Willy said, “We can use Rovers and Orbiters. Where can you put an extension cage? Anywhere on Earth?”

Ra Chen said, “Northern Hemisphere and some of the Southern. Beyond that, the Earth's mass-”

“Orbit?”

“Haven't tried. We build the cages like spacecraft, though. It's all Space Bureau hardware. They'll stand up to vacuum.”

“Whale fitted into the big X-cage, didn't he? We can fit a module in there-”

“But not a launcher.”

“Yes. Miya. Ra Chen, didn't I see antigravity beamers on the X-cage?”

“Yes.”

“Range?”

“How heavy is your probe module?”

“Pilgrims mass one hundred fifty tonnes, rocket and all. Twenty-two meters long, twelve meters diameter. I can assemble them in three months if you want them.”

“That's tiny compared to Whale.”

Gorky nodded. “I'll work out how many modules we want. We'll push the small X-cage back to before the Lowell observations-”

“Willy, will you settle for -550 AE? Seventeen hundred years ago, around

five hundred years before Lowell.”

“Middle Ages. Why?”

“It's when Svetz picked up Snake. Before the American continents got into the history books. Nobody local will bother us if we operate over the open Pacific. The time machine wouldn't have to be reset. That saves us a week, and funding too, Willy. You build your Pilgrims right, they'll just sit on Mars with their cameras running, right through the Lowell and Mariner periods.”

“All right The large X-cage homes on the small one? Good. Once you're in orbit you're halfway to anywhere.”

Organization was a skill Svetz had never tried to learn. It wasn't enough that things happen. They must happen in the

proper order. Rocket motors must appear before a hull could be closed. Fuel couldn't just sit in a tank; compressors must be ready to produce it at the right time. Why was timing so difficult for the Institute for Temporal Research?

Svetz sat in on endless discussions- “Now, here's the tricky part,” Ra Chen told Willy Gorky. “We launch the first load, then pull the big cage back empty. We load your next module inside, and we can take our sweet time doing it. Days, weeks, a year if there's a budget cut. Then we send it back to Miya and Svetz in the moment following the first launch. Launch again the same way. Or send it back to ten hours later, give them

a sleep break.”

“You can do that?”

Ra Chen smiled a fat ruddy smile. 'Time travel is wonderful, isn't it?"

Three months stretched to four, and wouldn't stretch further because the Secretary-General's annoyance was becoming overt. And one morning they were ready.

Chapter 6.

The new extension cage was transparent nearly to invisibility. It was no smaller than the old extension cage, which had once held Svetz and an angry Horse. But Svetz and Miya were nestled in the bottom of a spherical shell, and that might have felt cramped- “Cozy,” Miya said. “Why isn't one of us in the

control chair?"

Svetz smiled. "You'll see when we get moving."

She nudged Svetz's bag with her foot. "What did you bring?"

"Food, medical, and the trade kit. You?" He waved at the upper curve, where bubble helmets and the pelts of two rubber men were splayed out on stickstrips. "I haven't trained with pressure suits."

"If we have to go EVA, I'll take you through it slow and thorough. Trust me."

They lay foot-to-head, waiting while the Center milled around them. Svetz had become very comfortable with Miya. Her head was pillowed on his foot. He felt his own long, wispy hair brushing

her ankle. He'd considered suggesting greater intimacy, but-as often in his life-he was afraid of losing what he had.

Through the open hatch he heard a murmur of techs and hum of the motors, and: Gorky: "There never were canals on Mars. Miya's always been a bit flaky about canals."

Ra Chen: "Willy, you should have done this years ago! Pick up some Martians and you'll never have a problem with the SecGen again. You'd have Martians voting your ticket in the UN! Futz, you'd want to know what they knew about terraforming, too! Mars wasn't supposed to stay habitable that long, was it?"

Gorky: "We should look at Saturn's

rings too. They're recent"

Ka Chen: "How recent?"

Gorky: "A few... hundred thousand years. Never mind. This is already costing too much! Antigravity, pfah!"

Ka Chen: "Antigravity beamers came from Space Bureau. Don't you always launch by antigravity?"

Gorky: "Oh, no. It costs four hundred a kilogram to launch with rockets. It costs a thousand to lift the same kilogram with untigrav. When Svetz lifted Whale into the big extension cage, that must have killed around three thousand people."

Ra Chen: "You said that before. Killed how, Willy?" Gorky: "Lights brown out in an operating theater. Food

half spoils but someone eats it anyway. Somebody can't afford to repair his floater, but he has to get to work. A construction company buys clipper supporting girders for a new arcology. The money runs out on building a nuclear fission plant, but the power has to come from somewhere, so they burn coal. Soot winds up in a hundred million lungs, and there's more rads in it than they'd get from the fission plant.

“When wealth goes down the death rate goes up, even if you don't have a unique corpse to identify. Poverty kills. Most politicians have no idea what things cost. It's a United Nations tradition. But Waldemar Eleven, he's very aware of that. When a bureau

diverts power and resources, people die. What he really wants, even more than that futzed portrait-”

“What's in the trade kit?” Miya asked Svetz.

Svetz withdrew his attention from the talking Heads. “It turns heavy metals to gold. It's easier to carry than gold. Look, you just enclose something in this superconducting net part and seal it-”

“What's making you so twitchy?”

Svetz tried to relax. Tried to look relaxed. “I can't see why all this took four months.”

“You know, you can wait two years for a trip to Mars. Earth and Mars have to be placed right, and they don't move at your convenience. If you miss your

window, you wait.”

Svetz said. “The last trip I made, they pulled me out of bed at just past midnight. By live I was on my way. Waldemar the Tenth wanted a spotted owl. He wanted it now.” “Did he get it?”

“Miya, if the Industrial Age lists it as a protected species, we can't find it, unless it's a bison or a passenger pigeon. I was lucky to find any owl. It was somebody's pet, and she had some spooky weapons, really high tech. Someone from our future, I think.”

“I'd love to think we have a future.”

The pale-skinned tech named Zat Forsman lowered the big curved door and sealed them in.

Svetz said, “So we spray-painted spots on the owl-”

Everything went blurry. There was a flow of colors and textures, but no detail came through the glass. Miya started to ask a question, then trailed off as gravity changed.

They floated at the center of the sphere.

“If you were in the chair, you'd be hanging head down,” Svetz said. “It's reversed when you're coming home.”

“How long before we stop?”

“Mmm? Two hours. You were at the briefing.”

Miya asked, “Who were the first human beings to have sex while traveling in time?”

“Nobody, I think. No, wait, there haven't been any mixed couples. Nobody.”

“Great!” Her hands moved into his clothing. Svetz had never had an offer that straightforward. He asked, “We're going for a record?”

“Hanny, dear, Captain Thale and I weren't the first in free fall by a thousand years!”

They hung their clothing on the inverted chair. Internal gravity pulled them together and held them. Miya fitted them together as if she'd done this before, and that left them at right angles in midair, hip to hip and laughing like loons.

Chapter 7.

That was different.”

“Isn't this just like free fall?”

“In free fall you just float.”

“Oh.”

“Are we being recorded?”

“Hadn't thought of it. We can ask,”
said Svetz.

The four months' wait hadn't been wasted. High-tech devices from Space Bureau had been adapted for the extension cages. They had a voice link now, but no video. Svetz pulled himself up to the control board, opened the talker and said, “Svetz here, in transit, nothing to report. Testing-”

He heard Willy Gorky's voice.
“Good.”

“Sir, are you video-recording us?”

“Video and medical, but we'll get the data later. The talker only carries audio. You have to tell us everything.”

“Excellent!” Miya caroled, and switched off.

“So. You've got your record.”

“Look at me.”

Svetz looked.

“Four months and you never touched me.”

“Sure I touched you-”

“Never this. Never anything. Zeera keeps her distance from other men, so I wondered, but she doesn't brush up against you either. I wondered if you had something esoteric going with Wrona-”

“Hey.”

“What kept you, Hanny? You could

have had me in a bed.”

“Abed? Ooo.”

“Think of all the practice we missed.”

“We did pretty well.”

They were floating apart. Svetz said, “Grab something,” and grabbed at the chair. Miya grabbed Svetz, and then they were sliding down the glass curve of the cage in roaring darkness. Sudden sputtering light illuminated a wilderness of whirling cloud.

Svetz crawled up into the chair and jabbed the talker. “We're here,” he told listeners in the far future. “Nothing to see. We're in a hurricane, typhoon, whatever.”

Willy Gorky said, “That was quick.”

Svetz heard strangled laughter and

rapid explanations. He saw Miya's lifted eyebrow and said, "Far as they're concerned, we just left. I'm taking us up now."

They couldn't feel the cage lifting. Texture in the darkness streamed past them, then the Moon blazed above a mountain of cloud, lightning flickering within.

The storm dropped away. The sun flashed over a horizon now curved. Miya said, "Wow."

"Eight hundred clicks and no problems. Thousand. Twelve hundred," Svetz said. "Don't look at the sun, Miya!"

"7 know that!"

The Earth was a blazing crescent.

“Fifteen hundred clicks. How high do you want me?”

Ra Chen's voice: “Are they high enough?”

Gorky: “No. Can you get at least to geosynchronous? That's 35,700 clicks.”

Svetz: “I'll try.” He waited, watching the altimeter. Minutes passed.

“I'm at 35,700. Stop here?”

Ra Chen: “Just because you can get higher doesn't mean the bigX-cage can. Svetz, stop there. We're sending the large extension cage.”

A great glass sphere hovered beside them in the instant Ra Chen finished speaking. Miya flinched, then said, “What took so long?”

“It's here,” Svetz told his listeners.

The first probe module nestled inside the big transparent shell. He tap-tapped, and the shell opened like a flower. “Look it over, Miya.”

“It's the Orbiter. We want it in a pole-to-pole orbit around Mars.” She reached past him and activated the launch.

The probe lifted. In seconds it was gone from sight, but Svetz could see the large extension cage shuddering, the antigrav beamers turning to follow it.

“We're pulling the large X-cage home,” Ra Chen said.

“Good,” said Svetz, and the great mass was gone.

Miya broke a small dark brick and handed half to Svetz. “Ration bur.” She bit into her half. She saw his distrust and

said, "It's dried dole yeast. I've got twenty flavors here."

He bit. "Not bad."

The link chimed. Gorky's voice: "Miya? We're go for the next 1""ad Ready?"

"Boss, how did you ... never mind," she said, and laughed.

Willy Gorky laughed too. "Quick enough for you? Took us three weeks to assemble the Collector module and get it aboard. Shall we send it now? Or give you some nap time?"

"Now," she said, and the large extension cage hovered beside them with the Collector and fission rocket booster inside.

The Collector was a low-built tractor

with a chemically fueled rocket in its belly, mechanical arms and a pressure storage bin. They launched it, then took a break before launching the third and fourth. Miya kept up a running commentary.

The Orbiter would go pole-to-pole above Mars and relay messages from Pilgrim probes on the surface.

When the Collector returned a cargo to orbit, the Orbiter would carry it back to archaic Earth and a waiting X-cage.

The third probe held twelve toy-sized Pilgrims. Those would wander out in twelve directions from the martian equator. Their senses would watch and listen and taste the soil and the wind—"Hanny, I'm not getting enough thrust

here. The Pilgrims mass too much.”

“I can't keep the large X-cage. Ra Chen, pull it back.”

“We need”-the large extension cage vanished-”more thrust!” Her small fist whacked his shoulder.

Svetz said, 'Talk to her, Boss.’”

“Miya?” Ra Chen's voice. “We'll put the large cage through maintenance and send it right back.”

“The Pilgrims will be gone in a-oh, here it is again.” She watched the great sphere's antigravity beamers turn toward the third probe-carrying the Pilgrims, now far beyond sight-to boost it into course for Mars. “I could get used to this.”

The Collector would need fuel for

takeoff. The fourth probe, the Tanker, would land near the peak of Mons Olympus and use its nuclear power plant to convert martian atmosphere and six tonnes of liquid hydrogen into ninety-six tonnes of methane and liquid oxygen. Martians weren't likely to bother it there- "Why not?"

"Life on Mars-even Mars-probably evolved in water. Mons Olympus pokes right out of the atmosphere. Okay, Hanny, it's on its way. Jump us."

Earth and stars blurred like paint in water as the extension cage entered time. Gravity was outward, away from the sphere's center, as they were pulled toward the present. Miya looked at him speculatively across the width of the

extension cage.

Svetz grinned. "No time." He watched the inertial calendar for a few moments longer, then pushed the Interrupt. "We'll have longer going home. Yes?"

"Yes, my hopeful swain."

Swain?

The hurricane was gone. From fifteen hundred clicks' altitude the Earth's broad crescent was otherwise unchanged.

Miya took the controls. The antenna pattern painted across the surface of the X-cage shimmered as it called across three hundred and fifty million clicks to machines that had been crawling across Mars for three long years.

"That's done. Mars is about twenty minutes away at lightspeed. Forty

minutes before we get a signal. Can you jump us?" "No. We'll have to wait." "Fine."

"We're nowhere near that accurate, Miya. We can't place a cage within a year unless it's matching locus with another cage."

Forty minutes later... all Svetz saw was the shimmer in the antennae, and Miya's hands moving. Miya called the Center. She got Gorky.

"Chair, we have message bursts from all four probes."

"Bring them home."

"The probes are all waiting for new instructions."

"Miya, we'll have to decide what to tell them first. Come home."

Chapter 8.

The Norse mythological world tree, Yggdrasil is an evergreen ash tree which overshadows the whole universe.

-”The Ash Tree,” from Mattioli's Commentaires, Lyons, 1579 The whole of the Bureau of History and nearly as many from Bureau of the Sky Domains were crowded into the viewing room. There weren't enough seats. A crowd sat cross-legged ahead of the front row.

The Orbiter view showed red Mars strung with threads of gray-green six to eight clicks in width. Spectra showed lines of chlorophyll and water. Gorky protested, “They're too narrow. How could any optical telescope have seen that? Those old astronomers must have

been going on nothing but intuition!”

“They got it right, though,” Miya said. “Shall we call the SecGen?”

“Not yet.” Willy Gorky shifted to the refueling module, the Tanker. They watched the mountain's vast crater come up (flash?) and past. The Tanker settled onto a wide ledge. The fission plant trundled out on an array of skeletal wheels, trailing cable, and slopped eighty meters away.

Gorky studied the readings. “Full tanks. Now we know we can bring something home. Forsman, replay that flash.”

Instruments on the Tanker module had looked into the crater during descent. A white flash washed out everything, and

then the audience saw a skeletal structure of metal tubes and mirrors occupying part of the central crater. Spidery strutwork supported curved mirror surfaces hundreds of meters across.

“Sculpture? Artificial, anyway,” Miya said. “You’ve got your aliens.”

“Good.”

“Boss, do you see that?”

A floating flat something moved into view, distant enough to look tiny until Gorky zoomed. Then ... an open flying vehicle with eight crew, possibly man-shaped, moving around the upper deck. “Pressure suits,” Gorky said. “No wonder at this altitude, but what holds it up? Lighter-than-air craft don’t fly

without air.”

They watched it glide over the crater rim.

“I wonder if they saw the Tanker come down.”

Ra Chen asked, “We want to talk to them anyway, don't we?”

“Bring a few home. Ambassadors to the United Nations!”

“Kidnap?”

“We know what happened to Mars. Anyone we can bring out is rescued] Can you rebuild a Vivarium cage to house Martians?”

“Futz, yes. Just fiddle with the programs. It's already set to make breathable atmosphere for pre-Industrial plants and animals.”

“Excellent. What's the opposite of genocide?”

Ra Chen laughed. “Nobody's ever needed one.”

“Ra Chen, I'm wondering what we'd find if I sent a team to Mons Olympus in present time.”

“Is it an active volcano? That could wipe out any traces...”

Willy, don't do it. Knowing what's there today would restrict our options in the past. What else have we got?”

Pilgrim One gave them a breathless run across ochre deserts at high speed. A glimpse of something in flight. More desert.

Pilgrim Two: ochre sand, a claustrophobic run through a sandstorm,

then more sand and a line of gray-green. Miya's breath caught. Ra Chen slowed the view to real time.

Alien greenery, so flat that the low-built Pilgrim could look straight across six klicks' width of dry-looking vines. A row of small triangular heads peeped out of the web of dusty-green fiber to watch the Pilgrim pass. Infrared showed the heads as red dots: Worm-blooded.

The plants showed spectra of chlorophyll and water. If there was free-running water, it must run beneath the plants.

“Mars has ... had gigatons of water. Where did it all go?” Miya wondered.

Gorky said, “The Orbiter only found a few small seas. Most of the water must

be already in the canals.”

One of the animals pulled free and charged the Pilgrim. Body like a ten-legged weasel, face like nightmare, all teeth and hunger.

“I’ll call,” Willy Gorky said. To leave the viewing room must have been like pulling his own teeth, and he surely heard Ra Chen’s chuckle, but he hurried. Nobody else could be allowed to break this news to the Secretary-General!

And the rest settled back to watch the show.

Pilgrim Two ran fast-forward alongside the canal with ten-legged weasels biting at it, then turned suddenly. Ra Chen slowed twain to examine a slender arc of freestanding

bridge, ornately carved. Pilgrim Two crossed, watched impassively by an inhumanly tall and slender woman in a golden mask, and rolled on into red desert.

Ra Chen began flashing from one Pilgrim to another. He was trying to pull too much data too fast: Pilgrim Three rolled into thick ice at the south pole, and froze up.

Pilgrim Four was approaching dwellings when creatures on riding beasts attacked and disabled it with swords. Ra Chen froze the frame on dwellings like clusters of crystal pillars, elegant and fragile and ancient. Then on the attackers. Weapons in three hands out of four; bipedal; green skin; faces

like overgrown insects.

'Two species! Unbelievable. We'll have to ...' Ra Chen trailed off. No telling what might be needed at this point, or what he would have for resources.

Pilgrim Seven was crossing a web of valleys. Running the record at high speed made everyone seasick; Ra Chen had to stop. Up. down, up, down. "Valles Marineris," Miya said. "It was bad enough when it wasn't choked with greenery."

Gorky was back. He said, "Seven's not getting anywhere. Leave it."

Pilgrim Eleven rolled out of a sandstorm and found a smooth stone wall. It rolled placidly along the wall,

seeing nothing.

Pilgrim Eight rolled among low red hills toward cloudless blue sky. A dark vertical line appeared intermittently when the Pilgrim was looking up. Some flaw in the camera? Ra Chen went into fast-forward and they bore the motion sickness as Pilgrim Eight rolled out of the hills and down toward intersecting canals. A town looked to have grown up around the base of what was no longer a vertical thread, but a slender pillar in pale brown.

“It's a tree,” Svetz said.

The Heads turned full around. Ra Chen barked, “Svetz, are you sure?”

“I've seen trees.”

And so had any of the few allowed

into Waldemar Eight's Garden, but Svetz had seen them by hundreds and thousands, dozens of kinds of trees-"Most of them branch out like a family lineage diagram, you know? But a few just keep going up and up. Ash does that. Redwoods... you can't hold it in your head. It's like they're holding up the sky. Can you make the Pilgrim look straight up? How tall is that thing?"

Miya's grip was a vise on Svetz's wrist. "Hanny! Not just a tree. Willy!"

Noises outside: limousines. Then chaos rolled into the theater and everything came to a stop. Gorky's guards were followed by twenty conspicuously armed giants in United Nations Security uniforms. They

searched the viewing room and strip-searched its occupants and threw half of them out before they let the Secretary-General enter.

Svetz saw a crown or headdress rising above the guards. It was all Svetz could see of the Secretary-General. The middle of the front row was a kind of throne, and the space in front of it had been cleared.

Waldemar the Eleventh sat down. His voice held absolute confidence and a bit of a stutter. "Willy, s-show me what you've got."

Chapter 9.

Its roots, trunk and branches bind together Heaven, Earth and the Netherworld.

- "The Ash Tree," from Mattioli's Commentaires, Lyons, 1579 Pilgrim Eleven rolled along a wall painted with nightmare figures faded to ominous shadows. The wall curved away; glass tower* poked above its rim, barely glimpsed as the Pilgrim rolled into wilderness.

Pilgrim Four's last moments showed alien shapes on alien riding beasts, and hacking silver blades. United Nations guards shrank closer around Waldemar the Eleventh.

A slender vertical thread became an impossibly tall pillar, the center of a township of tall, spindly towers. Pilgrim Eight rolled I Mist, many clicks wide of the town and the great pillar. Ra Chen

froze the frame.

Waldemar the Eleventh asked, "How tall is that?"

Gorky relayed the order down. "Ra Chen, we need a better view of that."

Ra Chen said, "Formulate your instructions for the Pilgrims und we'll send 'em. Do you know what to tell the Collector probe? I)o you know what samples you want sent back to Earth?"

Gorky said, "We need a view up. I'd think we want seeds, if it makes seeds, and a lot more information." His eyes flicked toward I he Secretary-General. He would speak on any subject the SecGen raised first Pilgrim Eight ran straight to a canal, paused, then rolled in. Finding no easy way out, it followed

the canal, sending out its light-enhanced viewpoint. Eyeless things fled from motion or the taste of metal. Queer near-human skeletons in skimpy armor, and far-from-human exoskeletons enhanced with miniature frescoes and artificial ribbing, lay intermingled along more than a klick of canal bottom.

Pilgrim Nine reached the northern ice and froze up. Gorky felt la Chen's eyes on him and said, "We weren't expecting significant ice."

Pilgrim Ten rolled northeast until a canal blocked its path. It allowed the canal to a crossing canal; rotated, and found a free-standing arched bridge, fantastically long and slender. It rolled onto the bridge and into a city. Family

groups stopped to watch it pass. Men, women and children, they seemed of an unknown human race, with scarlet skins and narrow lips and noses. In martian cold they dressed in little more than weapon belts and jewels. Armed nudists, looking very mammalian.

Miya whispered into a recorder. "Look for antifreeze in their blood."

Two women pushed a carriage like the cart for a dole beer keg. Freeze that," Willy Gorky snapped. "Zoom."

It was rounded, the reddish-brown of martian sand, about a liter in size: an egg nested in fluffy cloth.

The Secretary-General spoke, and all other sound chopped off. "Well, Willy, you d-did it. Aliens. Alien civilization.

What next? low big is your Collector d-device? Can you bring me an ambassador?"

"Ultimately I can bring a whole family, Mr. Secretary"- Gorky's eyes flicked to Ra Chen and saw his nod-"and house hem in the Vivarium, but it might take years."

"Egg of a Martian, then. Something soon," Waldemar Eleven aid, and Svetz thought: In time for the coronation.

Gorky said, "I don't know how to keep an egg alive. Easier with n adult Martian, I think. Mr. Secretary, I'd rather get some seeds rom that tree."

They had seen only one object that might be called a tree. The lecGen didn't ask which. "Why?"

It was a strange conversation, Svetz thought. One did not speak a the Secretary-General without invitation. Gorky daren't even vol-nteer information, and that meant that the SecGen himself had to sk all the right questions. A rare skill.

“I want a look up,” Willy said. “Mr. Secretary, I think that tree is an orbital tower, a Beanstalk. If it is, we'll take the whole solar system for no more than the budget we were getting from Waldemar the Tenth. Square clicks of orbital powersats. Asteroid nines. We'll set colonies on Mars and Europa and floating in the iimospheres of Jupiter and Saturn and Venus. We'd need to plant one of these on Earth. We'd need seeds-”

“Can you even f-find it again? It looked thin as a d-dream,” the *((len said. “Willy, I've been trying to find the mmm, outlines of Syrtis Major and I can't. The canals and vegetation change everything”

“Measure from Mons Olympus, Mr. Secretary. The tree's at twenty-seven degrees two minutes longitude, zero latitude,” said Willy Gorky.

“Can your Collector device climb a tree?”

“No. Maybe we'll find seeds near the base.”

“What's this going to cost me?” asked the SecGen.

“At least two more probes. Use of the time machine three limes, maybe more.

Maybe a manned expedition. Ra Chen?"

They talked money.

Svetz tuned it out. "Miya, we've found cities on Mars, and all they're talking about is that tree!"

"It might be, it just might be a Beanstalk. How else could it stand up at all?"

"Don't understand the question."

She started to answer, but the SecGen was departing. In their mania for order, his guards were turning all into chaos.

Chapter 10.

Jesse's rod (stem). The animating and energizing force or light of Jesse; a genealogical tree; a phallus. Sometimes represented by a vine, thus equating with the beanstalk, Jacob's ladder, or Lugh's

chain.

-Dictionary of Mythology, Folklore and Symbols, by Gertrude Jobes A man in Space Bureau uniform lectured the Institute people. "Geosynchronous orbit is 35,700 klicks above the Earth. Whatever you set in orbit at that height will circle the Earth in exactly a day. It's a privileged position, because the Earth circles itself in exactly a day..."

Svetz got lost. So he tracked down Miya afterward and asked her.

"Hanny, it's a wonderful notion. You know what synchronous orbit is? It's where we put the weather satellites."

"No."

"Um. Suppose you're orbiting just outside the atmosphere. You go 'round

the Earth in an hour and a half, right? Higher, it's a bigger circle and you'd move slower. Takes longer. As high as the Moon, it takes almost a month to go around. Right?"

"Right."

"Somewhere in between is where it takes just twenty-four hours. For the Earth it's 35,700 km up. That's synchronous orbit. The Earth is spinning as fast as you're moving, so you stay above the same point."

"Okay."

"I take a coil of good strong rope. I set it moving above the equator with its center of mass at synchronous orbit. Now the coil stays just over a point on the equator, right?"

“Right.”

“Now I reel the rope out until one end is on the ground and the other end is way out there for balance.”

“That's your orbital tower?”

“Right. Now I run an elevator up and down the rope. I use it to lift cargo for the price of electric current plus any profit I can get away with. If I go past the synchronous point and then let something slide up along the rope, it'll fly off the far end with enough velocity to reach the asteroids.”

“It's a tree, but it's hanging from the sky?”

“Yes, exactly!”

Svetz rubbed his eyes. He said, “That would cost ... I can't imagine what it

would cost. And you think you've found such a thing?"

"Hanny, what made you say it was a tree?"

"It . . . reminded me of a redwood. It went up and never seemed to stop."

"Like Yggdrasil! Like the world-tree from Norse legend!"

"But no tree could be strong enough! Steel wouldn't be strong enough - "

"No, Hanny, hold on. An orbital tower has to be strong, right If you build it around Mars, you get high rotation and a lower mass, much lower, so it doesn't have to be as long or as strong. Picture it a hundred thousand clicks long, and the only thing strong enough is still carbon crystal fibers or fullerine tubules, and

those are carbon too.

“I think you were right. We can't make such a thing, we don't have anything to make it out of, so why can't it be a tree? Life is carbon based. Trees are good at manipulating carbon. And if we had seeds, we would go to the planets for nothing more than electricity!”

Svetz, Miya, Zeera, and most of the techs slept on air cots in the Center while a composite team of Sky Domains and History Bureau wrote instructions for the probes on archaic Mars.

In the morning they were back in the small extension cage.

Gravity shifted. They floated toward each other, bumped skewed, and pulled themselves around. The clothing they

stripped off kept floating back like intrusive ghosts. They made a game of batting garments away.

“Hanny! Mow many times do we have to do this before I'm a virgin again?”

Svetz laughed. “I've never gotten less hungry on any trip.”

And later he asked, “Are we going for a record this time?”

“Mmm. Duration? Number? Intensity?”

“Not unless I get some rest.”

“Someday I'm going to get you in a bed.”

Svetz didn't answer. Miya asked, “What's the matter?”

“I had this notion once. Miya, we're going back to before time travel was

even a concept. Once it was fantasy, fairy-tale stuff. In the late Industrial Age, Thorne and Tipler and some other top mathematicians showed that time travel was theoretically possible and did some designs. The Institute for Temporal Research came out of those. What if everything we collect from before plus-thirty Atomic Era is fantasy?"

"Hard to picture Whale as a fantasy! He's too big," Miya said. "Too scarred, too detailed. When you pulled him in, wasn't there a one-legged sailor still tangled in the lines and harpoons along his flank? That's gritty realism, that is!"

Svetz smiled. "Gila Monster would have charred me if I'd thought he was a fantasy. Horse tried to spear me like a

wine cork.”

“So.”

“You're an adolescent's daydream,” he told Miya. She purred into his throat, and he said, “And here we are, but we've never made love after plus-thirty AE. Maybe you're my fantasy.”

“Am I? Great. Are you ticklish? Is this real? Is it?”

In the old days they had used the time machine to set a two-milligram test mass alongside itself. The experiment ate energy equivalent to the test mass times lightspeed squared. Bringing an X-cage to a spacetime it had already occupied would cause a surge in energy consumption. That was how it could return to its point of departure.

The small X-cage emerged just too late to watch it's self vanish.

This mission would be cheap. They were only messengers, the messages already written.

To the Orbiter module: a burn to put it in a higher orbit.

“Excuse me?”

“It's in low Mars orbit now, Hanny. We don't want it hitting the tree. It's only luck that hasn't happened yet!” Miya kept working. “Of course the current Collector module won't be able to fly that high. We'll instruct the Orbiter to dive down and get it, and I hope somebody's writing that program.”

The Tanker was already fully fueled and awaiting the arrival of a loaded

Collector. No message needed.

To the Pilgrims: converge on the skyhook tree at twenty-seven degrees two minutes longitude, zero latitude. Pan up and down. Focus every instrument on the tree.

To the Collector: follow the Pilgrims. Where they converge, find ii high point and watch them. Defend against molesters.

“We've already lost four Pilgrims. We can afford that, but we can't lose the Collector. All right, Hanny. Jump us by a year and we'll collect what they get.”

Svetz dipped them into time, watched, tripped the interrupt. They'd jumped over two years. Miya sent the instructions. “Mars is close. Only about

eighteen minutes this time,” she said.

“Miya, doesn't Mars have two moons? Why haven't they chewed up the tree?”

Miya chewed her underlip. She turned to the control board.

“Miya?”

“I'm looking! The top of the tree doesn't taper off; it ends in a knob. Deimos is further out than that, but Phobos... Phobos is below synchronous orbit, it has to be, it goes around more than twice a day! Orbit's a little skewed, but it crosses the equator. It can't just keep missing!”

“Doesn't sound like your space elevator has been in place very long at all.”

Miya said, 'Tesss. Hanny, you have a

knack for... ah, penetrating fantasies. It would have had to grow very fast, wouldn't it?"

“Or arrive already grown.”

Message bursts from archaic Mars were streaming in. Miya checked to see that they were recording, and then Svetz set them moving forward through time to the present.

Chapter 11.

Lugh's chain. The Milky Way, chain by which Lugh raised men to heaven . . . Equated with Bifrost, Jacob's ladder, the stem of Jesse, Watling Street.

-Celtic mythology, Dictionary of Mythology, Folklore and Symbols, by Gertrude Jobes 1108 AE. It's a tree. In proportion it's as slender as an ash tree-

no, more! But near the ground it bifurcates and spreads. Scores of near-vertical roots sink deep. The sixty-fingered hand covers the green breadth of a canal and a square klick of ochre desert on each side. Wreckage of a bridge rides high in the tangle of roots. Other, newer bridges in slender martian style stretch around and between other roots.

Wait now, that wrecked bridge was lifted, as if the tree's roots rose from the ground. How could a tree grow from the ground to orbit? Nothing could be that strong!

Paired silver lines rise along a vertical root and far up along the trunk. Look up: the tree rises out of sight.

Silver lines continue as far as the eye can see.

The Secretary-General said, "This is hurting my eyes."

Svetz's eyes tried to twist as he followed Pilgrim One's viewpoint. Odd perspective here- "The trunk gets thicker as you go higher," Gorky said in haste. "We were expecting that. Your normal tree is wider near the base. It wants compression strength, you see? It doesn't hang. This skyhook tree is tapered so that less weight is hanging below any given cross-section. That makes it stronger."

It looked infinitely tall.

The Pilgrim probes were close, near the roots and among them. Pilgrim One's

viewpoint zoomed up along the pale brown line of the tree, into a dark fringe that began almost at the edge of sight, scores of clicks high. A ragged collar of foliage, already above the atmosphere, continued up the trunk as a vertical fringe, like mane on Horse. Hard to see anything at all in there. Not dark green. Black!

The SecGen asked, “You wanted seeds?”

The Heads took it as an invitation. “If there are seeds, I'd expect them to fall into the canal,” Ra Chen speculated.

“From that high up, they'd come down like little meteors,” Gorky said, “shielded against reentry. Punch their way through the weed surface into the

canal. We can't go there, Ra Chen.”

“We could.”

“There's a town built up where the canals intersect. The skyhook tree is in it. You're not thinking of a full-scale invasion of Mars, are you?”

“No, just send Pilgrims to search underwater.”

“Oh. Good. Give me some time to study these records. I want to know if there are seeds higher up the tree. I'd like to search the black fringe.”

“You didn't design the Collector to climb trees, did you, Willy?”

Miya leaned forward in the near dark, jaw set, her nails sinking into Svetz's shoulder. He asked, softly, “What?”

She whispered, “They'll have to use

cosmonauts!”

Willy Gorky himself briefed them the next day.

“Ra Chen and I can't work out how to tell a computer program what a skyhook seed looks like. We don't know ourselves. Miya, Svetz, you'll send instructions as usual, then pick up return signals from the Mars Pilgrims. We'll send six Pilgrims underwater. They should be safe from the locals, at any rate.”

Ra Chen said, “We'll mount a viewer in the small X-cage so you can scan whatever they find. We should have done that a year ago! Svetz, you've seen every kind of tree, you must have seen every kind of seed.” He overrode

Svetz's attempt to interrupt. "Our best hope is that you'll know a seed when you see it. Then tell the Collector module to go get it."

Chapter 12.

Eleven hundred years of development had shaped the Rovers. Early versions had explored Mars and the Moon. They had become smaller, lighter, cheaper, more clever. Later models roved the surfaces of every interesting body in the solar system. Some climbed like spiders. Some rolled as spheres with unbalanced weights in them. On worlds with no surface at all, Rovers floated or sank.

On archaic Mars, six Rovers (Pilgrim model) explored beneath the black

waters of a canal. They found soft mud, and organic substances subsiding into softness, and things that tried to eat them. They had been told little. They examined discreet solid objects and discarded things that were too large or too small. They sought shapes that repeated as seeds would. When the command came, they crawled out of the muck to beam their findings to the Orbiter for relay to a point above the Earth.

Miya and Svetz ran through the murky footage. Many hours later Miya said, "This is boring."

Svetz stopped the display and lifted tired eyes. He said, "Best duty I've ever had."

"Really?"

“I've been chewed. I've been scorched. I've been almost eaten, almost fried, almost perforated, over and over. I go alone, because there has to be room for whatever I bring back. There's never been anyone to guard me or rescue me, or talk to, or love.” There, he'd said it. “Every other trip, I've been hunting something with teeth. I hate... used to hate animals. Wrona seems to have talked me out of that. I am having a wonderful time.”

Miya sighed and went back to work. The X-cage had come to meet itself. Now it hovered above the same fat blue-and-white crescent they'd left behind two trips running. Only the pattern of stars had shifted. The cage was

hovering, after all; it wasn't in an orbit.

Svetz picked out an orange spark among the stars of Taurus near the western horizon. That was a world. He couldn't see it as more than a point.

If the Pilgrims couldn't find seeds, someone would have to go to Mars and look.

Miya pointed into the projection from Pilgrim One. "Look, Hanny, we keep seeing this shape. It's pottery, isn't it?"

Sunlight rippled across it: it was near the surface of the canal. "Vase. You can see the pattern. This symbol, it's that ten-legged toothy thing that tried to chew up Pilgrim Four."

"Not quite the same. A bigger relative. Hanny, I'm tired." Miya curled

up in the curve of the floor.

Svetz called the Center. Hillary Weng-Fa answered. She went to wake Ra Chen.

“No seeds,” Svetz said.

“How sure are you?”

“We get pottery, we get eggs. Bones look like each other, so the Pilgrims show us a lot of those. Once we got a mob of Reds in battle gear. They all looked alike. They were even walking in some kind of regular array. Pilgrim Six went right up to examine them. We've lost Pilgrim Si.

“x”Better tell Willy.”

No telling how much time had passed in the present. Here, only an instant passed while the phone went dead, then

live. He heard, "Miya?"

"Sleeping, Willy."

"Chairman Ra Chen tells me you can't find anything like a seed."

"We've typed fifteen styles of pottery. We find broken furniture. Not much garbage. Maybe there's a famine. We did find a heap of spiky seeds, fist-sized, but we searched through the rotten fruit around it, which wasn't pleasant, Willy, and it had more of the same seeds in it. There are skeletons of at least three biped species. Most of them look human. Some were wearing armor. The big four-armed ones grow their own. It's not as if they have wars, more like they fight in the streets every night We've found big eggs. They're not seeds, they're eggs,

and in fact they're humanoids' eggs, red and pale and black, all a little different Mars's answer to population control. Willy, we're both exhausted.”

“Get some sleep. Call me when you wake up. We're sending you to Mars.”

“Willy-”

“We can refit a Moon Minim spacecraft and get it into the large X-cage. If it doesn't fit, we'll fit something. We'll brief Zeera. I don't see any way to get seeds off that tree except to go up it.”

“Wait wait wait! I'm not a cosmonaut!”

Pause. “A chance to see Mars when it was alive? At United Nations expense?”

“Willy, we spent fifteen hours searching for your seeds, and six

Pilgrims spent a year gathering the data. If there were seeds, they'd have fallen. If they'd fallen, we'd have found them. This tree is sterile, and aside from all that, I, Hanville Svetz, am not a cosmonaut!”

There was a brief pause ... and Miya was watching him. Willy Gorky said, "Twenty years ago I'd have killed you to steal your seat on that ship.”

Ra Chen's voice: “Never mind, Svetz. Drop it, Willy. We'll send Miya and Zeera. You come home in the small X-cage.”

Miya's eyes closed. Svetz curled up next to her and let it all drift away.

Chapter 13.

He woke to Miya's voice.

He was looking at a bullet-shaped

spacecraft backlit against dark Earth and marked with riding lights. He knew what to look for: a faint halo around the ship, fading into nothing at one rim, was the shell of the large X-cage.

“You're awake? Good.” Miya was already wearing a skintight in brilliant yellow patterns. “Svetz, this is a pressure suit. The helmet unlocks and flops back if you're where you can breathe. Flops forward to close, lock it or it's explosive decompression. Unzip everything before you get in. No, wait, strip first....”

She watched, clinically detached, as Svetz zipped himself into the pressure suit. Stickstrips held it open against the wall, and it was still difficult. Limb by

limb, then torso; lock each zip. From shoulder to waist, the back of the suit was a shell ten centimeters thick: enough to enclose circuitry and an air and water recycler. The bubble helmet locked against it when open. The rest of the suit was very flexible, very thin. It fitted him like skin on a dieter, just a little loose. He smoothed out some wrinkles. He pulled the big bubble down over his head, wiggled it into lock, and set the air going.

Miya guided his fingers to sensors under his chin. "This is your voicelink," her voice boomed, receded. "This zooms your helmet." Miya's face expanded enormously. "The other way—" The room pulled in around her.

“Fisheye.”

Looking down at himself he saw the patterns of a brilliant green lizard. Miya's skintight was yellow and orange flames, like a bird he'd once glimpsed and lost. Waldemar Ten would have loved it, but he'd asked for a spotted owl....

Above Earth's black night side, a half-seen circle opened like a flower and puffed a haze of ice crystals. Spacecraft and circle separated. In a haze of frost a tiny pressure suit moved toward them.

Stickstrips held an elastic belt twenty centimeters wide, with Space Bureau insignia on an even wider buckle, and a hooded silver cloak. Svetz left the cloak but donned the belt. Miya nodded and

reached for a handle.

Svetz was used to changing gravity. He had a grip on the chair before the hatch opened. Air roared out; Svetz stayed put. The suit shrank in vacuum. Now it fitted him like skin on a sausage.

Vacuum outside, pressure in his helmet. The suit put pressure on his skin, but air still pulled itself into his lungs. He had to pull the belt tight around his belly before he could exhale.

Miya had placed herself near the hatch to catch him, but only now did she look back. His heart leapt. The skintight had shrunk around her. She seemed to be wearing nothing but yellow and orange paint.

Zeera Southworth pulled herself

inside and moored her flight slick. Zwra in a zebra-striped skintight was a marvelous sight. Her gaze brushed his crotch, which may have showed signs of his interest, and he saw a swallowed laugh. "Svetz. Want to see a rocket ship?"

"Yes."

'Take the cloak,' Miya advised him.

A flight stick was lift field generator and power source built into a meter and a half of pole, with a control ring at one end and a brush discharge at the other. Spinoff from Space Bureau, of course. The women bracketed him as they crossed to the large extension cage. They needn't have worried. Svetz knew flight sticks ... though this one felt

underpowered. A lift field wasn't a rocket. The Earth it pushed against was too far below.

He wrapped the cloak around himself. The Earth had rotated into somebody else's midnight as it turned beneath the hovering X-cages. Mars and the stars of Taurus hadn't moved.

They flew alongside a spacecraft like a bullet standing upright, and took their turns in the airlock. Lifted by antigravity beamers on the large X-cage, Svetz entered free fall.

Chapter 14.

The Minim was big. Three reclined chairs faced up into a transparent nose cone. Behind those was considerable cargo space. Svetz noted a rolled-up net,

and a door in the hull big enough to admit a van.

“Roomy,” he said.

Zeera said, “We don't really know what kind of seeds a tree this size makes-”

“They've got to stand up to reentry,” Miya said, “at worlds maybe bigger than Earth-”

“A seed could be as big as that door,” Zeera said. “If it's bigger, we'll have to strap it to the hull.”

Tools were mounted around the cylinder wall. Svetz noted slickstrips for three pressure skintights and three flight sticks. He waved at devices mounted in sleeves- Xeera pointed. “Sonic stunners. Long-range blasters. Translator.”

Three of everything. Wide stickstrips along the wall, to tether llure crew for sleep. We can refit a Moon Minim spacecraft, Ra (hrn had said. Svetz had refused to go to Mars, and then they'd built for three.

Miya had heard his refusal. He could lose her! Willy Gorky WHH manipulating him, but it wasn't as if he had a choice.

“Xeera, can this ship talk to the Center?”

Xeera tapped a device like the talker in the small X-cage. “Get inr either Chairman,” she ordered.

“Wait one,” a tech said.

Gorky's voice. “Ready?”

“Xeera Southworth here. No

showstoppers. Hanny Svetz wants to talk.”

Svetz said, “Willy, this ship will clearly support three. I want to KO to Mars, if it's all right with Chairman Ra Chen.”

Silence crawled. Then Ra Chen asked, “Svetz, are you in free fall now?”

“Yes.”

“How do you feel?”

“No problems.” No motion sickness.

Gorky's voice. “I don't know what the small X-cage will do. Can we pull it back without a pilot?”

Ra Chen: “Yes.”

Gorky: “Glad to have you, Hanny.”

Miya broke in. “Willy, that changes the ship's mass by... ?” Her eyes

questioned him.

“Sixty-one kilos,” Svetz told her.

“Miya, you oppose this?”

Miya locked eyes with him and said, “No, Willy, I’m for it, but rewrite the instructions for boost.”

Gorky: “Have to pull the cage back anyway. Our twenty minutes are up.”

The large X-cage blinked, gone and back again. Miya snapped, “Seat webs now\” and didn’t watch Svetz’s initial clumsiness. A ruddy dot above the Earth’s limb waited.

He felt no thrust. The large X-cage shrank out of sight. A few minutes later the Earth was flowing past and the daylight crescent was narrowing.

Zeera watched her instruments.

“Willy's pulled back the large X-cage again,” she said. “Boost One accomplished. We're in orbit it eight KPS.”

Svetz said, “Orbit? I thought we were on our way.”

“We'll close-approach the Earth. Then the X-cage pops back and the antigravity beamers hit us again. This ship's too heavy to jet into Mars intercept in one boost.”

Miya nodded as if she understood, so Svetz did too. He moved about the cabin, testing his agility. He looked over the gear that hung on stickstrips along the cylinder wall. “Zeera? A translator :or Martian?”

Miya answered. “Hanny, these have

been used in United Nations sessions for near a thousand years. They can translate thieves' cant and old recordings of dolphin and whale song.”

“We have a live whale!”

“Yes ... hadn't occurred to me. Anyway, these things certainly don't have Martian on file. You and the Martians will have to talk until the translator can correlate some of your words.”

Svetz unrolled a screen to cover the cylinder wall. Now it was just another floor.

The Earth turned full.

It came to him that being trapped in a tiny spacecraft with Miya Thorsven for two years wouldn't be half bad. Two

more years returning, if Mars didn't kill them. He looked around the cabin, wondering how they could get privacy. Zeera had never shown interest in any man or woman... which reminded him. “Zeera. How's Wrona?”

“I brought her to the Center. She can go home with Hillary if the mission lasts overnight.”

Overnight?... Oh. “Zeera, do you like Space better than Time?”

“I never told you, did I? When I was a little girl I wanted to live with Martians. We should've merged the two Bureaus then instead of waiting.”

“Another fantasy fulfilled?”

Miya snapped, “Oh, get off that, Hanny!”

“Here's another,” he said. “Marooned with two beautiful women, millions of clicks from planet Earth, for... four years, Zeera?”

She laughed. “Four years without Wrona, doesn't that bother you?”

“It's not four years for her.”

“Won't bother us either. Have a look at this.” She showed him what Ra Chen had built into what would have been storage space for provisions. “It's an advance on the temporal interrupt that we've been using to stop the X-cages. We call it Fast Forward or FFD.”

Chapter 15.

Eight clicks per second is fast. Svetz never saw the large X-cage return. Telltales in front of Zeera told him when

it came, how hard it pushed, and when it was gone. He only saw the Earth shrinking behind, and Mars like a glowing heart in Taurus.

Zeera said, “Miya, you'll appreciate this next move.” She engaged the Fast Forward.

Svetz trusted the machines of the Institute for Temporal Research without understanding them. He simply enjoyed the show.

The slowly dwindling Earth shrank abruptly to a bright point. The sun itself was shrinking. The pink pinpoint that was Mars grew brighter... grew conspicuous....

“I wondered where all the provisions were,” Miya said lightly, but she had a

death grip on her armrests. "This is time travel too, isn't it?"

"Minimally. We have to put ourselves in the right path before we engage, and then the vehicle just follows the path, the geodesic. We can't change course or dodge, or fight either, I suppose, but we're hard to hurt. The Heads say that if we hit an asteroid, it's good odds we'll go right through it."

Svrtx asked, "Which Head?"

"Both. Grinning like fools," said Zeera. She was working at the keyboard. Pictures scrolled across one of the displays. "Svetz, have fou seen these?"

In the display screen, Mars came up fast. An edge of horizon aecanie a shield volcano of awesome size.

“It's the view from the Tanker?”

“Yeah. Watch.”

The viewpoint dropped toward a vast crater, its bottom a glittering asterisk of mirrors; dropped past the rim, slowed above a rocky ledge... but lines and tiny numbers overlay everything he saw. Zeera said, “The Tanker, the Pilgrims, all the pictures that came back, Ra Chen and Gorky have been turning it all into maps. We can't get lost.”

She wasn't looking at him. Svetz realized he was missing the new.

The bright orange point had become a disk. Not a disk now: a whirling sphere expanding much too fast. “That's close enough,” Zeera said, and Mars jarred to a stop, as large as a full Earth seen from

the Moon.

Thus far the trip had cost them forty minutes ship time.

“We still have to match orbit with Mars. Anything threatens is, we just go past. We've got fuel to abort and return. Miya, take the copilot slot.” Zeera sounded edgy, and well she might. They were rubbing up against an alien civilization. They had examined little more than its garbage, but all the corpses wore wounds.

The Minim slowed at a tenth of a gee, spiraling in toward Mars. [The planet waned to a shrinking crescent, then a great black hole in the stars.

They were moving inward of Deimos' orbit, and Mars was a spreading

crescent, when Svetz found the tree.

It was foreshortened, pointing almost at the ship. The orbital tower looked like a giant's club. They were passing just above the massive, rounded upper end.

“Interestingly phallic,” Miya said. “Or is that just me? Hanny!” as a diseased potato thirty clicks long came straight at them. Zeera screamed.

The hurtling moon missed them by... Watching it recede made it seem that Deimos had missed by two clicks or more, still much too close for comfort.

Miya came out from behind her arms. She looked at Svetz for a heartbeat, her face too pale. Then she turned her attention to the planet.

Mars was still distant by hundreds of

clicks, but the Minim's zoom display was good. Mars' crescent grew gibbous, then full. Canal patterns laced the deserts, knotted into cities at the intersections. There was a wide white northern ice cap. Miya swore monotonously. "That region has to be Syrtis Major, but there's nothing left of the shape! Valles Marineris is all gray-green... there, where all those minor canals converge. Zeera, every feature I know has changed. I'm feeling very lost. Wait, that's Mons Olympus, with greenery crawling up the sides. That's Aeolis coming over the horizon, and the tree growing out of it."

Craters thickened east of Aeolis. Canals crossed a few of those, the ones

that held water. Mars covered half the sky. Features raced beneath the Minim, expanding. “Aeria,” Miya said, “I think.”

“Better be,” Zeera said.

Svetz asked, “Zeera, are you going to land us?”

“No. Aerobrake.”

“What's it mean?”

“You'll love it. Are you webbed in?”

The hull began to sing. A landscape of mottled ochre desert and ragged canyons and narrow gray-green lines hurled itself directly at his face, close enough to touch. Svetz clutched the arms of his chair and felt heat radiating from the window. He never thought to look at his companions. He heard Miya murmur,

“Xanthe,” and saw a monstrous crater pass beneath them.

Then the singing tapered off, but Zeera whooped and whacked his bony back. “Hell of a ride!”

Svetz began the process of relaxing his hands.

“This next part's tricky,” she said.

Thrust built up against their backs. Mars was a shrinking crescent. A hint of a vertical line was growing ahead.

Zeera's mind was on her flying. She talked in staggered half sentences. “Chairman Gorky's been seven ... months rebuilding the Minim. We missed the coronation, of course. We had time to un your travelogues to death ... but we just weren't seeing enough ... enough of the

tree. It's Beanstalk seeds we're after, ffilly Gorky thinks the ... SecGen is losing patience... but it's really Willy.”

“We're not on a rescue mission?”

“No, Hanny. If we can save some Martians, that's in order. But first, where are the seeds?”

“Not if?”

“Hanny, we assume there are seeds. Seeds are wanted. Where would you want to drop seeds if you were a skyhook tree?”

Svetz shrugged. “Deep water, for a plant that tall. The canal, in ocean, if there was one.”

“But you looked.”

“They aren't there.”

Miya said, “Hide seeds in the black

fringe. Grow a cannon. Spit them over the horizon at other canals.”

Zeera said, “The fringe runs ... along the mid-trunk for more than twenty thousand clicks. You want to search all that?”

“Make us a better offer.”

“The fringe is like leaves on a tree, Hanny. It makes sugar. Spectrum off a laser flash showed us the chemical that does pho-3synthesis. It's not chlorophyll. A separate line of evolution. It's probably from another solar system.”

Alien.

“The fringe could make seeds too, I guess. You want to look i the fringes? That's the plan, then. I've got us in synchronous orbit. We can study the

mid-trunk before I go down.” Zeera cut the irust and they floated.

The trunk had grown huge. Svetz guessed it at five hundred meters thick and a couple of clicks distant. He asked Zeera, “Do we have to go down at all?”

Miya exclaimed, “Hanny! That's Mars down there!”

“I like to know my options.”

Zeera sighed. “We've already used up too much fuel to get home. We'll need to land at Mons Olympus and refuel. Now make a choice. Do you want to go down the tree or up the tree? You've got flight sticks. I could let you off at the midpoint, then go on to refuel while you work your way down. Or you can ride down with me, maybe talk to some Martians, then

fly to the tree and climb.”

They spent a few minutes talking it over. Svetz wished they could call the Center and give the decision to someone else. No KO: the talker would reach through time, but not through an interplanetary gravity gradient. They were out of contact until they could return to Earth.

Ultimately Miya said, “Let's get the job done first. Zeera, let us off here. We'll work our way down and join you at Mons Olympus.”

Miya left her seat. In one-tenth gee she fished out three transparent bags and handed two to Svetz and Zeera. “Do you both know how to use these?”

Grinning, Svetz said, “This may never

come up-”

“You can't breathe pre-Industrial air!” Zeera laughed. “It nearly killed Svetz on his first trip.”

“Nearly killed us all once,” Svetz said.

“My fault,” Zeera said. “I gave steam cars the edge at the beginning of the Industrial Age.”

“The change shock hit us and everyone stopped breathing and fainted. I got us into filter helmets-”

“If it wasn't for temporal inertia, we couldn't have fixed anything. There wouldn't have been an Institute or a time machine.”

“See, Miya, you've got to have certain substances in your blood,” Svetz said,

“or your body forgets to breathe. Carbon dioxide, nitrogen oxides, sulfur compounds. You need other industrial by-products too.”

Miya asked, “Why didn't you change too?”

Svetz and Zeera looked at each other. Zeera said, “You mean humans.”

“Of course I mean humans! When the air changed, why didn't every human being on Earth change over to breathing pre-Industrial air?”

“The change shock moves at different rates,” Zeera said. “We might all have suffocated waiting. Or strangled, if we changed before the air did.”

“All right,” Miya said. “We need filter helmets to breathe martian air at

ground level. These aren't stock issue, they're altered "or Mars. Note the insignia-" A thumbtip-sized orange dot on the forehead. "On Mars they have to concentrate oxygen and hold carbon dioxide and monoxide out. Don't try to climb with just these. In vacuum you need a full pressure suit. But keep them handy."

Svetz and Miya donned their pressure gear and tested the voicelink. Miya showed Svetz how to back into a rocket pack, set it and lock it to his back plate.

Nozzles faced back, up, down. Nozzles poked past his short ribs, facing forward. He was wearing high explosives on his back, and he'd known this was coming. They were in balance

between Mars gravity and centrifugal force. A flight stick would push up: no help.

Miya affixed a flight stick to Svetz's back for use when they got lower; then a blaster. "Want this too?"

She was holding the needle gun. Svetz said, "Yes."

"You sure?"

"Habit. We don't use blasters on any normal mission. We don't want to kill anything in the past."

She turned and let him stickstrip a flight stick and blaster to her back, careful to keep it all clear of rocket nozzles.

Miya went out first.

The skyhook tree was fat in the

middle, wider than any redwood. The black foliage only began much lower down.

“Let's do it,” Miya said. Facing the tree, she fired her rocket pack. Svetz fired his a moment later. It kicked him toward the tree. When her flame died, he cut his off too.

Chapter 16.

But most women, when they feel free to experiment with life, will go straight to the witches' Sabbath. I myself respect them for it, and do not think that I could ever really love a woman who had not, at some time or other, been up on a broomstick.

-Isak Dinesen, “The Old Chevalier,”
from *Seven Gothic Tales* The mid-

trunk was glossy, void of detail but for a glittering silver thread. Svetz used his helmet to zoom on it. The thread split into two parallel lines.

“Miya?”

“I see it. The Martians have built a lift. That's what you do with a Beanstalk.”

Svetz asked, “They'd have used it to explore the solar system, wouldn't they?”

'Time is your thing, not mine. There are lots of little moons in the outer system, some almost as big as Mars. If Martians had been there, we'd have found something. Mars must have been just starting to reach out when something interrupted. Some disaster.”

Svetz reset his helmet view. Unzoomed, the trunk was still coming close. Far around the curve was a creasing of the... bark? It stretched for several clicks, as if a silver-gray wing were folded along the trunk.

“Ready for retrothrust?”

“I haven't taken my fingers off those switches since you showed them to me.” The bark was very close.

“Good. Hold off, though, Hanny. You see anything scary?”

“Lift cables. We've got Martians above and below. Those folds: you see them? I want a better look at those.”

“Retrothrust,” Miya said. He didn't see her fire, but he toggled switches with four fingertips. Nozzles poking past his

ribs fired.

His bark plate pulled him backward.
The trunk came softly up to meet him.

There was nothing to cling to.

Zeera's voice: "Are you on the tree?"

Miya: "Phoenix has landed. Hanny?"

Svetz: "Snake is on the tree. Zeera,
how's your view?"

Zeera: "I have views through both
your helmet cameras. I will call you
from Mons Olympus."

Blue flame puffed. The Minim
spacecraft receded and was gone.

Chapter 17.

Beanstalk. Universe tree of fairy tales;
ladder or road to the heavens?... The
rope trick of India is related to the belief
in a stairway to heaven.

-Dictionary of Mythology, Folklore and Symbols, by Gertrude Jobes Svetz followed Miya around the trunk. The sun shown directly on them. Svetz deployed his silver cloak like a parasol, but he was still sweating. The porous pressure suit let his own sweat cool him. Otherwise he'd have steamed himself to death.

He asked, "Should we be wearing sunblock?"

"The suits block UV," Miya said.

He drifted alongside the silver-gray crease. "Blanket big enough to cover a city. Square clicks of it," he reported, for Miya and a later audience. He touched it. "Flimsy stuff." He crawled under a fold of tissue-thin leaf and

turned his headlamp on. He was instantly dazzled. “Yow! It's a hall of mirrors in here.”

“A skyhook tree could use light-sails to maneuver. Grow them like leaves.”

They crawled around under the silver-gray leaf without finding anything but bark and mirror.

They followed the metal rails down to a switching arrangement. “Willy would have used a maglev track, not a box on rails,” Miya said. “This must be deadly slow. Building it must have been deadly slow.”

“Maybe they live longer. Now what?”

“Down,” Miya said. She fired rockets and was off down the mink. Svetz followed.

She was nearly out of sight, but her voice remained clear. "Cut your thrust now. Hanny, use the flight stick when it's time to decelerate. We've got gravity now. If you see anything on the trunk, tell me."

"Nothing but the cable." He was falling. Free fall hadn't bothered him at the midpoint. This was different. He fell alongside the tree as if he'd jumped from an arcology's roof, falling too fast and dead already.

"I see another silver wrinkle, another light-sail leaf. Don't get too close to the trunk, Hanny."

Svetz didn't intend to.

"Big box on one of the cables. It's just an open cage, barred, lots of boxes

inside, some troops too. Hanny, duck.”

“Duck what?” he asked. He still hadn't seen the barred box she spoke of, but he fired a puff of rocket exhaust to push him sideways.

“I'm just being cautious,” Miya said.

There: a barred box on the rail. He zoomed his view, and saw a metalwork cage sculpted into a festival tent. Sparks lit the cage, puffs of flame from a dozen tubes. A flicker tugged at his peripheral vision: bits of metal passing silently through the space he'd vacated.

Miya had gone past the lift before they could react. They must be shooting at Svetz.

Carefully rather than quickly, Svetz pulled the flight stick from its tape and

set it between his legs. It surged and lifted him away from another volley of what must be kinetic weapons. Faceplate magnification gave him shapes within the grillwork, just for an instant, as In-hurtled past.

He'd seen at least five species of manlike and alien creatures among the fifteen or so. Some looked like humans in gaudily decorated armor, or in plain armor but with oversized misshapen heads; some were bigger, with too many limbs; four clung to the bars, all limbs, like Octopus, who shared Whale's cage. One was standing apart, weaponless, but he felt its regard: a cream-colored creature three meters tall, a skeletally gaunt giant fitted with great goblin ears

stuffed into a fishbowl helmet.

“Missed me twice,” Svetz told Miya.

“Any damage?”

“No. I'm losing you, though. Not falling as fast.” His teeth were starting to chatter with reaction. He'd better stop talking.

Gravity had grown strong. The trunk slid past him ever faster, minute by minute. The band of dark foliage was still below him, but rising. Something on the trunk- “Miya? That row of loose struts?”

“I see it. Artificial?”

“No, I think that would be stems for light-sail leaves. The leaf material's gone. Martians might have harvested it, like a farm for mirrors.”

Miya said, "I'm going into the forest."

"East side, foliage strip, aye. Decelerating." He'd never had a partner on a mission. He'd never had to coordinate every futzy move with someone else.

The flight stick thrust up against Mars' pull, but it gave him maneuvering range too. He needed it. He'd drifted too close to the trunk.

He heard, "Hanny, I misjudged. I'll be landing five or six klicks below the top."

"Want me to go in higher up?"

"Do that."

The flight stick was steady under him. The trunk slid past, slowing. He dropped alongside black foliage, sparse at first, then thick and dense.

Miya: "I'm on. I'm inside. Yeee!"

"Miya!"

"Something jumped at me. I had to shoot it. These blasters Ion'l leave much. Svetz, are you in?"

"At, not in." Svetz hovered, looking into a wall of black forest. The fluffy surface looked no more substantial than a dandelion ready to blow. He had no real wish to go inside, and no way to avoid it. Something in there had tried to kill Miya.

He fished out the blaster and fired into the black wall, angled down.

Foliage flared white. There was no recoil. The blast speared straight through until the tunnel showed red Mars at its far end.

Things swarmed out. Gravity and momentum pulled them away before he could see much of them.

He tracked a lens-shaped creature as big as a bungalow, the last in a whole fleet. Maybe Zeera could get more detail from the recording.

Coils of cable fell thrashing, then stretched out, clicks and clicks of it, reaching. Svetz used the zoom feature to track it. One end brushed the tree, dragged along it, caught more, loop after loop ... thick cable marked with a black-on-milk diamond pattern ... that was a wedge-shaped head.

Yes indeed, there was more than one kind of snake.

“I’ve fired a hole right through the

forest. Things came out. Now I'm going straight in," he reported.

"Futz of a way to explore," Miya said.

"We're not exploring. We're looking for seeds. Seeds on a thing this size ought to be immense. Unmistakable."

"We can hope."

He coasted in. Coming out of the sun had him nearly blind despite his headlamp. When his eyes adjusted a bit, he jetted down the channel.

Whatever might consider him edible must have died or fled. Twenty minutes later he let himself fall into sunlight

"Miya, I'm out. Have you moved?"

"Still inside. I'm not finding anything."

"HI drop past your position by... oh, fifty klicks and go in again." Svetz was

already falling, his flight stick providing just a touch of lift.

Miya sounded tired. "Hanny, it's too high a job."

"I know. We're missing something. We need to know where to look, but I just don't see the right pattern yet. Zeera, are you with us?"

No.

"Miya, if you were a tree, you'd want to drop your seeds in water, wouldn't you? The tree did that. Sank roots where two canals crossed."

"So?"

"This band of foliage ends, what, a hundred clicks up? If seeds dropped from the bottom, they'd fall at a slant. Coriolis effect would pull them.. two or

three klicks east?”

‘We’ll look.’

A twinkling overhead. The Martians’ lift cage was in view, much lower than it had been. It must be nearly falling, and it was flashing light.

“Miya? They’re coming down.”

“Can you find cover?”

“I can put foliage between me and them. I’m falling faster than they are. We could talk to them if your translators worked in vacuum.”

Two hundred klicks lower, the fringe of black foliage had swollen to become a match for any forest still on Earth. Svetz charred out another tunnel.

Again a swarm of creatures fled his blaster beam. A nightmare shape took an

interest in Svetz. His blaster dissolved it, but he'd attracted attention. Four rippling silver sheets with eyes in the middle drifted near, studying him. Living light-sails: not the light-sail leaves that grew on the tree, but maybe part of the same evolutionary line.

Svetz knew that if he fired on ambulatory mirrors, his own beam would come back at him. He jetted into the tunnel. They didn't follow.

He slowed midway to look around.

Limbs became branches became little branches became twigs.

Growth here was fractal, like a fern or a tree. He saw nothing like flowers or fruit or seeds or pinecones.

Miya was taking more time to

explore, but she was making bigger jumps. He stopped another hundred clicks down and dipped in again. Tree parasites had grown sparse. Nothing else had changed.

The upper tree was a line of winking lights when he emerged. Pretty. Svetz zoomed his view. Lights twinkled all along the trunk to the far tip. Signals....
“Miya, they're talking about us.”

The edge in her voice matched his own. “I see it. Mirrors. They can chop huge mirrors out of those light-sails. What the futz is that?”

Something ghastly bright was coming at them out of the night. The breath froze in Svetz's throat. Something like an eroded gray mountain came straight

toward the tree, turning massively us it came. The flicker of mirror-speech stopped as it moved on them, growing, growing, gone past with several clicks' clearance.

Fear made Miya's voice ragged. "Missed. Hanny? Talk to me!"

"I'm okay, but that was disturbing. Phobos? It must scare the Martians into fits every time it comes by."

"It and the tree must be in a resonance pattern. Ha! We can hope. What else have you found?"

"Look up," he said. Her suit was badly chosen, too like the colors of Mars, but he'd spotted her. "I found you."

He dropped past her and slowed,

keeping his distance. She eased alongside him. Two flight sticks fell together along the narrowing trunk. Dawn was crawling down the tree toward Mars. A broad crescent of dawn crawled across black land toward the base of the tree.

Not black land. He saw lines of light, brighter where they crossed. Cities formed where canals met. There were more cities, arcs of light like little crescent moons on the darkness. Directly below was a cruciform glow. But none of those lights were blinking.

“Up here they're talking with reflected sunlight,” Miya said. 'Talking about strangers on the tree. They'll get answers as soon as it's daylight below us, and

then the whole planet will know all about us. Maybe it's time to talk to some Martians."

Svetz agreed. "Offer them refuge. Tell them what's going to happen."

"We don't exactly know what happened, Hanny."

"Makes us less persuasive. And from everything I can tell," Svetz said, "Martians would rather open fire than conversation."

There were lights flickering below, not on Mars, but- "Duck," he said. Another open cage was rising toward them, flashing with reflections and tiny puffs of fire. Futz, there were crabs crawling all over the outside! Crabs as big as Wrona, with human faces, it

looked like. Human shapes inside the cage were doing the shooting.

He glided sideways to put forest between him and what he'd seen.

“Futz!”

“What?”

“Something hit my helmet,” Miya said.

“Futz! Pull into the foliage, let me look at you!”

“I'm fine. My ears are ringing a little.”

Still falling, braking with their flight sticks, they eased around the narrowing curve of the tree. Svetz heard Miya cursing softly before he spotted it.

Above them on a second pair of silver tracks, a wooden raft hung vertically. A cargo lift, rising. Things were tied to it:

a boxcar-sized bulb with a door in one end, and several smaller boxes. Man-shapes were clinging to the web of lines.

Something struck his back-shell, not from the cargo lift. Svetz yelped and lifted on the flight stick. But that would take him too close to the guns on the cargo lift! Around the trunk, then, with bullets trying to follow him, and then turn off the flight stick and fall!

“Where are you?” Miya asked.

‘Tailing. West side.’

“The trunk below us is swarming! Hanny, let's go with your guess. Go in at the bottom end of the black forest. Hide in there. Hope we see seeds. Zeera, are you reading us?”

The shadow of dawn had crept down

the trunk to its base. Half of Mars was alight, and all of the skyhook tree. Svetz squinted down into a coruscation of blinking lights. Sunlight and mirrors: Mars was talking back to the tree. But stare into the blaze and you saw more.

Aircraft too high to be aircraft.

Ho zoomed his faceplate, and saw thousands of flying vehicles around the base of the tree. Higher up, mere hundreds, all (it seemed) trying to dock against the trunk. But that high, they must be in vacuum!

The Pilgrim probes had videotaped what seemed to be hardshelled dirigibles. Could Mars have a lighter-than-vacuum gas? What was he up against here?

Some of the sparkling was weaponry: puffs of fire and a glitter of projectiles falling short. But some of the weaponry wasn't aimed at them. The natives were fighting each other.

Miya said, "Zeera's over the horizon, and the Orbiter doesn't seem to be in position to relay. Still with us, Hanny?"

"Still intact and on course for the bottom of the forest. Miya, I may have used flight sticks as often as you have. Just not in Mars gravity while trying to move inside a sausage skin."

"Very good. Anything goes wrong, yell for me. Don't think it over first."

Chapter 18.

Jacob's ladder. Typifies a soul's approach to perfection. A universal axis

or World Tree. Equates with Ama-no-Hashidate, the Beanstalk, Lugh's chain, stem of Jesse, Yggdrasil.

-Dictionary of Mythology, Folklore and Symbols, by Gertrude Jobes A flyer ruptured and began to sink in a scattered cloud of men.

Mars still pulled like a planet The flight stick was lifting at maximum, but Svetz's belly still thought he was sliding down a smooth glass hill. But the treescape slowed, slowed... until the Black forest was a world-sized bulge above him and he was starting to float back up.

Miya drifted alongside. Below them the trunk was infested.

Svetz had barely heard of termites. He

had to picture something like Von Neumann nanotech machines turning living wood into more of themselves until there was nothing left but the machines. It looked like that, just a haze of motion, until he turned up the zoom.

He had not anticipated that the wealth and power of Mars, five hundred and fifty years before Earth's first atomic bomb, could match the wealth of the United Nations of 1108 AE. But armor and manpower of that order was crawling up the tree at them.

The twinkling wasn't all mirrors. Close below them, slender man-shapes were fighting green-clad six-limbed giants. Faceplates winked like silver mirrors. Here and there were twinkling

blades, stick-figure shapes, improbably tall, moved about the trunk undis-urbed, observing the fighting like hundreds of wandering referees.

Svetz said, speculating, “It's a technology race, like the First Cold War. Somebody saw us using tools that no Martian has. They can't let anyone else get to us first. We came to rob them. They're ill swarming up the tree to be first to rob us.”

One of the factions was getting too close. Svetz saw puffs of Gunfire. Swords or not, they still had kinetic projectiles.

“Let's get into cover,” Miya said. The forest flared briefly and left it charred tunnel. Miya jetted into it. Svetz fired

rockets and followed.

It was soft, cushiony. Wriggle through, wriggle down. “That's iw behind you, so don't shoot.”

“Good. I don't see any parasites,” Miya said. “Or seeds.”

Even seeds of Earth could take any shape. Pinecones, spiky peach pits, smooth almonds, great melons with tiny seeds, avocados, acorns, sesame.

Whatever their form, skyhook seeds would look all alike. They might be armored against reentry heat. Otherwise Svetz had no idea what to look for, and Miya of Space Bureau had even less. He was seeing nothing but foliage- “Have a look here,” Miya said.

He saw her below, by pink Marslight.

He wriggled down beside her. They'd left most of the tree above them now, and Mars was close below. They peered down through a hole in the sky.

The lower sixty clicks of tree was swarming with troop carriers and cargo vehicles. Miya said, "I'm wondering-"

The tree shuddered. They had that instant's warning, and then the trunk lashed like a whip.

It was worse than any earthquake. Svetz was totally disoriented. His arms and legs strangled a black branch that was trying to fling him into the sky. His grip was being shaken loose.

Eerily calm was Miya's voice. "Hanny, I've lost my flight stick. Can you come and get me?"

“What was that?” The tree was shuddering still. Miya was nowhere in sight.

“Don't know. Don't care yet. Come and get me.”

She was falling!

Stop a moment. Think. “Was it lifting?”

“My flight stick? No. Maybe it stayed in the tree.”

Svetz saw it wedged in branches. He reached, and the tree shook it and him out like overripe fruit. He was spinning down, dizzy and disoriented, with his own flight stick in one hand and the other falling with him.

A flare of rockets sent him close enough to grab.

“I've got them both. Wait one.” He wrapped himself around his flight stick, gripped the other in an armpit, and barely stopped himself from twisting the lift throttle. He'd lose her if he lifted!

“Miya, you've got your rocket pack. Find me and come get your flight stick. Do it before we both burn up.”

“Understood. Can you see me?”

“No! You're the same color as Mars! Who picks your wardrobe? Look for me; I'm green and I'm turning on my blinks.”

“Blinks, aye aye.”

“We'll make great targets. Oh,futz\” He screamed in terror as the tree ripped loose.

Whatever was happening below was half hidden in a cloud of chaff. Some of

that chaff was vehicles and men. The tree's lateral surge must have shaken most of its parasites loose. The torn base of the rising tree trailed wood chaff and artifacts: twisted silver rails, pressure suits of human and nonhuman shape, falling sky ships. A falling lift cage: men and green giants and big crabs were swarming out and over it, and what they hoped to accomplish was beyond Svetz.

Svetz's emergency suit lights were scintillating in preprogrammed panic. He was a clear and vivid target. Maybe Miya- "I see you, Hanny."

-Maybe Miya would get to him before anyone else. And there she was, a flickering orange flare rising past him. Svetz twisted the flight stick throttle hard

over. "Do not make your burn. I'm chasing you," he called.

She was there again, coming down, and he twisted again to kill the lift, rockets too close. "Let me do the docking--"

"Just give me the flight stick!" she screamed. He hadn't guessed how frightened she was. She snatched at the brush discharge with both hands, and had it.

The tree's torn base rose past them, big as a wooden moon.

He glimpsed Miya again, high above him on the flight stick, and lost her. They were falling fast. Already he could hear a whisper of wind. They'd burn as meteors if they couldn't kill their

velocity.

It was not a time to worry about staying together.

Her voice was clear, almost calm. “Too much weight on the tree. They overloaded it.” “Are you all right?” “Decelerating. I lost it for a moment there, Hanny. Look out overhead, there's a lot of futz falling at us.”

He looked up at men falling silent in vacuum.

A sky ship dropped past him, slowed and rose again.

His hand scrabbled at his back. He must have dropped the 'luster, but he was instinctively reaching for the needle gun, and if found that.

The vessel was alongside him. It

might have been a dirigible balloon with wooden decking along the top. Men swarmed out of the interior well, anchored themselves, and hurled something. It unfurled as it came: a net.

Svetz twisted the throttle off and dropped under the net. They pulled it back and prepared to throw again.

Something ripped the vessel wide open. For an instant Svetz could see into a tank running bow to stern, filled with gas glowing by the light of a vermillion laser. Then the glowing gas puffed out and the vessel dropped away.

Wind sang a reedy melody, pulled at his helmet, set up a tremor in his flight stick.

Martian vehicles dropped past him.

Nobody seemed to be firing at Svetz. Some fired at each other. None tried to match the lifting power of Svetz's flight stick.

And then one did. A sky yacht was floating down toward him.

He shifted laterally. So did the yacht, matching his lift. It was brick shaped, covered with masts and nets with no regard for streamlining.

“Miya, a flying yacht tried to net me, and now I've got another,” he said. He looked for a target. He could glimpse men, but they were under hatches, firing through slits.

Miya said, “I'm clear. I can get to you, but not fast. I'm already in the atmosphere.”

They must have recognized his needle gun as a weapon. The ship rose above him. A net flew. He dodged. They pulled it back and threw again. He dodged.

Air sang past him. Ho could feel heat on his shoes, the backs of his legs, his forearms.

The sky yacht's crew tired of trying to net him. He saw puffs of flame from covered slits, and tiny metal missiles whacked the back of his flight stick. The brush discharge sputtered blue lightning and he fell.

Nothing had hit him. He was falling with a dead stick between his legs, but he wasn't dead yet. He twisted every control. The stick only sputtered puffs of lightning. He kicked it away from him.

The sky yacht was falling alongside him. The net came down again, and this time, rocket pack or not, Svetz didn't dodge. The net swept him in, and the flight stick too, and pulled him toward a wooden deck.

Svetz fished out the flight stick and threw it overside.

The deck knocked the wind out of him. He felt it surge under him, the yacht pulling upward. "They've got me," he said.

Chapter 19.

In one respect at least the Martians are a happy people; they have no lawyers. -"A Princess of Mars," by Edgar Rice Burroughs Describe the vessel," Miya instructed.

“Seventeen meters by seven, fitted out like a boat, no keel, no aerodynamic surfaces. Two long tanks with a narrow cabin between. I'm not guessing about that; I saw a tank ripped open on another craft. There are firing points forward, kinetic energy weapons, a motor aft and a deck across the whole top. I'm lying on the deck.” And he looked up at a row of silver masks.

They wound the net around Svetz to immobilize him. Svetz said, “They look like men, what I can see. Except... one.”

“Don't leave me hanging.”

“It's just watching. Squatting with its knees way higher than its head. Bubble helmet isn't quite big enough for its ears. It's wearing just the helmet. It's covered

with white ... feathers! Bird ancestry.” “Hanny, it wouldn't be related to anything from Earth.” The crew fished his needle gun out and gathered 'round to study that. One crewman fired at something as it fell past. When he saw no result, he fired a crystal into a wooden post. It left a tiny streak of white powder. He was not impressed. He kept the needle gun.

Several crew picked Svetz up and turned him for inspection. They reached through the net and opened buckles until they had freed the rocket pack and could slide it off his back. They must have recognized the bell-shapes as rocket nozzles. They were careful with it, bracing it against the deck before they

tried to fire it They couldn't make it work.

They'd find the safety override soon enough. Svetz spoke while they were playing with the rocket pack. "Miya, they're built like basketball players. Their pressure suits are not quite skintights. They're quilted and painted in camouflage, all reds, and they wear bracelets and toques over the suits. They're wearing silver masks. The masks are pictures of human faces, like death masks. Little windows for eyes. Gems in some of the masks. I won't be able to use my translator until we've got air. Talk to me, Miya."

"I'm here, Hanny."

"The decks are wood. The fittings are

wood. There's some metal, maybe iron and gold, but I'm surrounded by literally tonnes of wood!”

“Enjoy. I've found seeds.” 'Tell me.’”

She had flown over the city. “Graceful towers that go up and up. Those slender arched bridges. Streets wind high up between the towers with no support but a few arches thin as an afterthought Everything looks fragile. They build like they've forgotten gravity, Hanny. The tree's been dropping all kinds of heavy stuff; it'll knock down half the city before the day's over. Nobody was going to notice me in all that “I came down east of the city. I found thousands of craters all in a line, all sizes-stuff that fell off the tree over

the years-except that a lot of little craters were just the same size, two meters across. I dug seeds out of the centers of those. They look like big yellow apples.”

“Mission accomplished.”

“Yes! But, Hanny, I still can't get Zeera. I can't even get readings from the Orbiter.”

He'd been hoping for better news. The time machine couldn't reach Mars. The Orbiter was to carry them back to Earth orbit. Without the Orbiter... ? “Don't kill anyone from now on, all right, Miya? Without the Orbiter, what we are is immigrants.”

“Hanny, the blaster is the only weapon I've got. How do I rescue you

without killing anyone?" She sounded brittle.

"They haven't hurt me yet. When we get air I'll try to talk my way out."

Miya said, "I'm looking over the ... you called them roots, but I don't think so, Hanny. They're anchors. Some of them have fallen over. They all fell eastward. The ones still standing are already sprouting black fuzz at their torn ends. I think I know what's going on here."

"Yes. Yes. Futz, Miya, that's awesome. Should we be looking for two kinds of seeds?"

"I think so. Hanny, are you glad you came?"

"Let's wait on that."

“These flying yachts keep nosing around. I can dodge them, but there are too many now, and they're shooting at each other, and I just think I'll get out of town. Any idea where you're likely to land?”

“I'll ask the captain when we get some air. Maybe you'd better check in with Zeera.”

“That would take days. I'll hide and wait. Keep in touch.”

There were big holes in the city, big enough to see from a hundred clicks high: fallen towers and fallen anchor trees, and fires spreading unchecked. Open water glittered where a fallen tree had blocked a canal. These trees had seemed mere roots when the main trunk

was in place. Now they seemed immense, bigger than any building.

The ship had fallen far. Svetz could feel an honest wind blowing now. and hear the nimble of a motor. The vessel didn't hover long over the city. It chugged toward where a vertical thread hung from the sky.

“Miya. We're following the skyhook tree. That's west, isn't it?” Freed of the mass of its anchor trees, the tree rises. The orbit expands. Moving west-to-east with the planet's rotation, the tree lags and falls behind. “There's nothing west of us but desert.”

“I'll follow. Keep me posted.”

His captors took off their helmets and sucked air like they'd never tasted it

before. Martian suit recyclers didn't seem to be as good as Space Bureau's. Their features were narrow and their heads were long, with pointed chins, but they seemed quite human. One crewman reached down and fumbled around Svetz's head until he found how to open his bubble.

Svetz couldn't move his entangled hands. "I'm going to faint now," he said.

The man didn't understand, of course. He spoke a few words. Svetz said, "My translator must hear you speak before it can help us."

The man spoke at length.

Svetz talked with the Martian, and breathed whenever he remembered. The Martian taught Svetz one word at a time.

Eyes. Fingers. Grasp. Breathe. Fall. Matth from Noblegas, the Martian who was teaching him, Sailor middle rank. Svetz, himself. Skyrunner, this dirigible yacht beneath them. The orbiting space elevator still drifting ahead of Skyrunner, with its far end sprouting silver Mowers, was the Hangtree. Aft was Hangtree City....

The air was pre-Industrial, and thin. Breathe! But there wasn't enough carbon dioxide in his blood. Breathe ...

He revived because they'd closed his helmet and Miya was shouting in his ear. "Hanny! Answer!"

"I've been unconscious." His arms were still bound. His translator had a pickup outside the helmet It must have

heard whatever was said, storing the sounds without understanding. “I’m having one of I host- days.” Svetz said.

Miya said, “Ride it out.”

Matth was answering too. The translator hiccuped and said, “Why do Svetz throw the-?”

Svetz guessed, and bellowed his answer to get it through the bubble. “Why did I throw the flight stick?”

‘Yes. Buy your life with it?’

“You hurt my flight stick. I thought it would hurt us. I bought all our lives.”

Another Martian shouted, “Matth? I tried to net it.” He displayed a net with a black hole burned through it. “The flare would have killed many of us.”

Matth nodded. “Svetz, did you make

that happen?"

"No!"

Miya: "I'm turning down the volume."

Matth said, "You are slave to the ship now. Your life you must give for the safety of Skyrunner." There was no question in his voice, and no doubt. Did Martians become slaves that easily? It would explain why he had been rescued, not killed.

"Why did you sleep?" Matth asked.

"You opened my helmet and left me with not enough breath."

Matth made an intuitive leap. "You come from where the air is different. Another world! Earth?"

'Tes."

"From Earth?"

Svetz was growing hoarse. “Matth, free my hands! I can make my voice loud.”

“With your hands?” Matth considered. “Swear not to attack us or Skyrunner.”

“I swear.”

“Swear for your friends.”

He couldn't really vouch for Miya, and Zeera had a bloodthirsty streak. He said it anyway. “I swear.”

Matth freed him. Svetz stood up. He twiddled the volume control and asked, “Can you hear me?”

“Yes,” said Matth and Miya.

“Good.”

The deck surged with little gusts of wind, just enough to throw his balance off. Lower gravity seemed to make it

worse. There were handholds all about him and a rope along the deck's rim. Svetz wobbled forward, handhold to handhold, seeking a better view. He said, "I see other sky ships."

Matth said, "Those are enemies."

Svetz lowered his helmet over his head and zoomed. "The closest is bigger than Skyrunner. The next two are about our size, and one of them has big crabs all over the deck."

"They are part of the-" Something wasn't translated.

"The ships further back are too slow. They won't catch us. Some of them look like the lens of an eye. I can't tell how big they are. I count fifteen total."

"You have good eyes."

'You said the crabs are part of... something?'

"Several kinds of men gathered to make Hangtree City. The"- the translator hesitated-"Allied Peoples. There is a prophecy, Svetz. The world will dry and die. We hoped to use the Hangtree to lift ourselves to space."

"When did the Hangtree come?"

"When Lord Pfee was a child. Lord Pfee?"

A Martian answered from a higher platform. "Matth, I have a vessel to fight!"

Matth went to join him. The two spoke. Presently Lord Pfee bellowed a string of orders, then came with Matth to join Svetz. Lord Pfee asked, "Can you

see great distances?”

“Yes. What do you want to know?”

‘Tell me what you see?’

“Ahead, nothing but desert.” Svetz zoomed his view. “Some right-angle patterns just at the horizon, right by a few degrees. Might be foundations for a city. Behind us, two ships our size and one twice as long and more flat, all at about our altitude. They're pacing each other now, and they're all closer than they were.”

“The markings?”

“Where would I look for them? Never mind, I see what you mean. It's a hand, finders spread, painted across the bow. All three ships.”

Miya misread his hesitation. “Brightly

painted cloth on a mast or pole.”

Svetz knew that! “I see them. They're flapping, I can't read them at all. Blue on the big one, the same pattern on a little one, and the other one is yellow and red.” Svetz looked up. The banner flapping above him was yellow and black. “None like yours. One of the lens shapes is catching up.”

Lord Pfee asked, “Weapons?”

“I don't know what to look for. The ships all have little holes in front. The big ship has two, and there are tubes on deck that look like they can turn.”

Lord Pfee nodded. He barked rapid orders to Matth. Matth left.

Svetz asked, 'Tell me how the Hangtree came.’”

Lord Pfee peered at him suspiciously. "If I take this glass thing off you, you die?"

"Yes." It might take an hour, but he'd be unconscious, unable to save himself.

"What you threw away, wasn't it to keep a secret from us?"

"I thought it might explode and kill me. Weren't you told?"

"Yes. What of this?" The rocket pack. "For flight on the tree?"

"Yes." Svetz wobbled across deck to where they'd mounted it. He showed Lord Pfee how to work the rockets.

"And this?"

"Needle gun. These needle crystals dissolve in blood. It puts animals to sleep. Enemies too, but only from

close.”

“Not a useful thing.”

‘Tell me how the Hangtree came.’”

“I do have a ship to fight, Svetz. Still . . . come.” Lord Pfee led him up a ladder to a railed balcony. “I can command from here. You can use your far-vision to keep me informed. What is your interest in the Hangtree?”

“We hope to lift vessels into the sky, to the other planets.”

“Yes, the Allied Peoples thought so too. ...”

Chapter 20.

Lord Feshk ruled a city of many thousands where two canals nossed. “I was his fourth son out of fourteen,” Lord Pfee said, “Few of us are left.”

A city of a hundred thousand or more, Svetz decided as he listened, and hundreds of clicks of canals bordered by farming land Lord Pfee wasn't counting slaves, children, women, elderly, or maimed: only men who could fight.

When Lord Pfee was three, peculiar black-headed plants were found growing around the edge of a canal.

Ten years later they were a mighty grove that partly blocked the canal. They threatened a bridge of great age and beauty. Lord Feshk ordered them cut down.

Beneath woody silver-brown bark, they were stronger than any metal made on Mars. Uprooting them would have involved digging out a canal. Lord Feshk

didn't order that. He thought he had something valuable.

He built a fortress twenty manheights above the ground with the alien grove as his pillars.

When Lord Pfee was seven, a black string floated down from the sky. Children watched it wavering through the grove, blown by winds but always returning. "We chased it for days. I was still young enough to enjoy climbing." Ultimately it got tangled in the black trees, and there it clung.

No man could see how high it led. Over years, the trees bowed inward, crumpling Lord Feshk's fortress, until the tops of every tree in the clump had grown into a single knot around the

dangling string. That grew to a thick silver-gray vine. Children were told not to pull on it. They did that anyway, and it held their weight.

A century passed.

“Lord Pfee, do you mean a hundred martian years?”

“Yes. I was married and a landholder and had four girls by then.” And what had been a black string hanging from the sky grew thick and thicker, until it and the anchor grove merged into one vast trunk. The black tufts became a ragged black collar that rose to the edge of space with the growing of the anchor grove. More black foliage ran up the Hangtree's silver-brown Hank.

Savants came from all over Mars to

study the Hangtree. Lord Feshk didn't like them. He taxed those who came, and restricted their movements, until the races of Mars allied and attacked his city.

“We were killed or scattered, Lord Feshk's children. My sisters married. They're safe, and they know my secret. I and my few remaining brothers and our children rule homes buried in a desert.”

“But we found you on the tree. Did you join this Allied Peoples?”

Lord Pfee spoke with the reluctance of a criminal confessing. “We scavenged a city abandoned when its water source dried up. We found wealth to build a few airships and modify them for vacuum. We unburied their gate, marked

in ancient runes whose meaning was madness. Green Cross, on a featureless desert! We scavenged the name too, and joined the Allied Peoples as Green Cross.

“But I wear Lord Feshk's face.” Lord Pfee tapped his silver mask, now tilted back on his head. “We all wear our ancestors' faces. We have not forgotten who killed our father. When word came that creatures had crossed from another world, we sensed opportunity-”

A man shouted. Lord Pfee left him abruptly.

There was a mast. Svetz zoomed on its peak to find an observer tending a mounted tube. Lord Fesk was bellowing thinly, gesturing widely at men tending a

similar tube on a rigid mounting. They were playing with objects (zoom) feeding small pointed cylinders into a feed belt for the tube.

Lord Pfee returned and spoke as if they had never been interrupted. "Allied Peoples comprises five tool-building species including the insect giants, the Tunnel Crabs and their mindless symbiote carriers, the Smiths and the Softfingers and ourselves. Most of Mars accepts the prophecy that the world will dry and die. The High Folk counsel us to accept our fate. But the Allied Peoples would change that future. Some factions babble of settling Earth. Svetz, would you give them help or war?"

Svetz said, "It wouldn't matter. You

couldn't stand or walk or light under the pull of the Earth.”

“I've heard that too. And some babble of siphoning water from a large ice-shelled moon of”-the translator hiccuped-”Saturn. When I was a child we had no notion that that world had moons or rings!”

Miya broke in. “Europa is lighter than Mars. It's water under an ice shell. Hanny, you could position a tether with its center of mass in the second Lagrange point, with Europa between it and Jupiter. Europa's tide-locked, so you'd still have an orbital tower.”

Svetz relayed most of that. “And people of your world could move around there too.”

“Their plan is not mad?”

“No. I'm worried about your sky ships, though. How do you lift?”

“We use a gas that pulls up when irradiated with the sixth kind of light. Inert, the gas is still lighter than air.”

“That is weird,” Svetz said. “Bizarre! But if it works by lifting away from the mass of a planet, then you can't get to Europa. Between the worlds you'd be adrift.”

“The Softfingers use something else, something secret.”

“Rockets?”

“Do you mean like the recoil of a gun? Is that what you use? Can you teach us?”

Svetz said, “I can do that. Lord Pfee, is that one of the High Folk?” Indicating

the skeletal giant on the mast.

“Yes. Ignore him. He is with Skyrunner but not of it, with the Allied Peoples but not of it. Man, when we fought to reach you on the Hangtree, we hoped for more from you than a weapon that puts animals to sleep if they're close enough! What would your people pay for your life?”

“Ransom?” He heard the gap: the translator didn't have that martian word.

Pfee spoke, and “Ransom,” the translator agreed. “Weapons or wealth or ideas, power to take back Hangtree City! We must command the Hangtree itself, I suppose, to hold the city. We might nile in tandem, my people and your men of Earth. But have you anything

to offer?"

"Rockets, eventually, but maybe I can buy my way free now." [t might be worth his life. "Lord Pfee, give me some object you don't need anymore."

Lord Pfee spoke to a warrior.

The enemy ships-"They're rising," Svetz said.

Lord Pfee laughed. "Why, so they are!" And he went below deck.

What happened then looked like group madness. Twelve men boiled out from below deck, all wearing pressure suits like golden armor. They replaced men at various stations. Those disappeared below. The ship surged upward.

Smoke and fire puffed from the nose of one of the enemy ships. Railing along

the leftward side of Skyrunner splintered. Then the other ships fired too. The big tubes made a guttural drumbeat boom. Some of the crew fired devices that were more like needle guns; Svetz heard their higher-pitched snap, and a flurry of snaps from oncoming ships. It all sounded distant, harmless. Near vacuum was eating the sound.

But impact weapons chewed the rails and the masts. The crewman who was carrying Svetz's needle gun sprayed red mist and screamed a diminuendo behind the calm of his silver mask.

The skeletal alien clung to a mast and watched.

Lord Pfee emerged with his mask closed. He shouted through it. "They're

trying to get above Skyrunner. Fools! We can rise higher than they. We're stripped to leave the air entirely!" He handed Svetz a double handful of vertebrae as big as a man's. "A terwheele was our dinner two days back. Will these do?"

Svetz ignored Lord Pfee's evident amusement. "Yes. You should not see what I do next."

"It nibbles my mind that I should not leave you alone, Svetz!"

Svetz shrugged. 'You'll have to fight your ship. Set me a guard you can trust with wealth.'

"I do not have even one man to spare," Lord Pfee decided. He closed his silver mask and began moving about the sky ship, giving his commands in

sign language. He stopped briefly beside the High Folk observer.

Svetz felt his suit contracting in near vacuum.

As for the following ships, two had fallen away. The largest was spraying vermilion. But a ship marked with yellow and red lifted to keep pace while its crew threw mass overboard, and one of the lens-shapes had come much nearer.

Svetz opened his trade kit, and suddenly realized that the observer was squatting beside him, all bones inside a heat-insulating Huff of tiny white feathers, its knees higher than its head. It made no signs and didn't try to speak.

As instructed, Svetz ignored him. He

fished out the superconducting net and wrapped it around the bones from dinner and sealed the edge. He started the conversion sequence.

Skycranner tilted far forward. Svetz squealed and rescued the trade kit without releasing his scissors-lock on a mast.

Miya: "What was that?"

Svetz said, "We're in a battle. I'd better tie myself down." He still had the net.

"I've been following your ship, Hanny, but you've gone way above me. Keep me posted."

"Miya, they haven't briefed me on their plans!"

Skycranner's nose gun fired. The sound

was almost lost to vacuum, but Svetz felt the deck jump. The ships below were firing, but their missiles were fighting gravity. Skyrunner fired again, and again. The big ship sprayed vermilion and sank.

A missile struck Skyrunner's side.

The trade kit had finished its work. Svetz took the altered vertebrae out and stowed the kit. Two ships below Skyrunner were both falling. Altitude was a major advantage here. But the red-and-yellow-marked ship was pacing Skyrunner. The lens had come in range too. It looked like two silver woks set edge to edge, with a small glass dome on the upper surface.

Skyrunner rocked to another hit.

Sailor-Second Matth crossed the deck at a run-and-climb, making full use of every handhold. Matth stopped by Svetz. From his bellow the translator picked out, “Weapon ... buy your life and freedom ... ?”

Svetz handed him an altered vertebra. It hadn't gained mass. It was porous gold now; it would melt down into a much smaller ingot.

“Gold.” Matth turned it in his hands; twisted it and broke it. “What shall we do with this? Push it down their throats?” He flipped the pieces overboard. “Mars has all the gold we need.” He was off at a half run, half climb, sprinting from handhold to handhold.

Svetz caught a flicker and turned in time to see what happened next.

The silver lens jetted a tight column of flame, very like Miya's blasters. Flame grazed the right side of Skyrunner and ripped it from bow to stern. Skyrunner shuddered and was the center of a luminous vermilion cloud. The lurch and roll caught Sailor-Second Matth off balance, and then Matth was in flight, flapping wildly.

"Miya, I'll be down shortly," Svetz murmured. He felt the right side of the ship, his side, sink.

"No hurry." Miya caught something in his voice. "Hanny?"

Once upon a time it had begun to bother him that all of the people he met

in the past were dead. When he told Zeera his problem, her take was quite different. "They're not dead, Hanny. Nobody's dead. If you don't believe me, go back and talk to them!"

"Hanny! What's happening?"

He told her. He was hanging from a horizontal mast that projected from the vertical deck of a ship. The ship was falling toward noonday Mars with red desert below. One tank was still lifting. It wasn't enough. In a few minutes he was going to be dead.

The crackle of gunfire paused, then became a continuous rattle. The remaining sailors were those who had found handholds. Now they saw no reason to reserve ammunition. Skyrunner

lurched to two quick impacts from the big guns of the red-and-yellow sky ship.

Skyrunner was falling... and then it was really falling.

Svetz released the net that bound him and cast it as a line for climbing. Those hours on the tree were all the experience he'd had in free fall, and he'd better use them now. Too soon, Skyrunner would be in the winds.

Martian sailors watched him. Two, then three began crawling up the vertical deck.

.Svetz reached his rocket pack.

The three didn't like that. They moved toward him a little less timidly, a little faster, as he wiggled into the harness.

The rocket pack was built to

maneuver in free fall, not to fly. It would thrust at half an Earth gravity. It must be almost empty. Svetz burnt another teaspoon of fuel jetting down to pluck his needle gun from a dead Martian tethered to the underside railing.

For an instant he might have gone further. Where was Matth? Svetz zoomed his view of a hundred falling dots scattered across red Mars. Some were debris. Some were men, and several of those were flailing.

Skylrunner had not lost lift quite soon enough for Matth. He would reach Mars ahead of Skylrunner. Svetz could never have reached him.

The sky ship was slowly tumbling. Crew were crawling up the vertical

deck to tether themselves along the railing. Svetz clung where he was, but he didn't tie himself. "Miya? Mind if I talk this out?"

"Brief me! Always talk it out."

"I'm high enough to be in vacuum in a ship that has a tank of some light gas along either side. The gas lifts if it's irradiated with what sounds like a laser. It's antigravity, not our version. Now the right tank's ruptured. Left side isn't lifting either. If that tank's been shot open too, then we're just another crater."

"What do the Martians think of all this?"

Svetz watched a crewman tying himself in place. They were all lined up along the left railing. Many of the silver

masks were turned toward Svetz. Some had guns, but all wore swords.

“They've all tied themselves in place against the crash. I've been rescuing my belongings. They haven't decided what to think of that.”

Lord Pfee was still belowdecks, where the controls must be.

Miya asked, “Where art- you planning to hit?”

Planning? “Well, (here's something below us. A crater showing under the sand, with markings around the rim like the blueprints for a city. Maybe it's a buried city. You might not see it from ground level.”

“I'll watch.”

“O futz ftuz futz-”

“Hanny?”

He shouted in joy. “We're lifting! I knew it! Ships were shooting at us. Lord Pfee dropped us away from them. Now he's turned on the lift again. It's just one side, we'll still crash. That's why they're all clustered along what's going to be the top. I don't think that'll save them.”

The dead men watched him, fascinated: an alien talking to himself, in vacuum and moments from death.

He watched the desert come up at him, and when it was very close, Svetz fired the rocket pack and jumped. He balanced facedown as flame roared past his ribs. A Martian snatched at his ankle as he went by, and missed. The man drew his firearm and sent a quick shot

after Svetz. Then he was rising above Skyrunner, but Mars was rising faster.

Chapter 21.

He couldn't see.

He could hear, though. A voice yammered in his ear. "Hanny! I saw you come down but I can't find you. Hanny.1"

He was bruised everywhere. His back hurt. Something hot was burning his elbow. He tried to push away from it. That pulled his face out of the sand, and then he saw sunset light.

In the triumph of the moment he bellowed, "I still live!"

'Where?'

The sun was high. Right on the too-close horizon were the sunset colors

he'd seen, below a navy blue sky. Closer yet, Sky- runner looked like a glass bottle dropped on pavement. A big bird (zoom) flight stick and orange rider were circling the wreck.

“Miya, I'm not in the sky yacht”

“Oh. Good!”

“It was getting some lift, but near the end I used the rocket pack. I think I ran dry. I hit like a bomb, but... not as hard as they did.”

Svetz stood up, testing, taking his time. That hurt. In reasonable gravity he'd never have made it. But broken bones would be a deeper hurt, and what had burned his elbow was a rocket nozzle.

“There you are. Can you walk?”

“Worth a try.” He took a few tentative steps. “I can walk.”

“That's good, because we only have one flight stick.” She hovered above him. “I thought you were dead, Hanny. They're all dead.”

“I'm not surprised. Are you all right?”

“I didn't learn anything in ... Hangtree Town? You got lucky. This Allied Peoples sounds like something we want to join.”

“Why?”

“They've been exploring the tree for a century! They must know where to find seeds! And it's not as if we're protecting Earth, Hanny. A Martian couldn't stand up in Earth gravity.”

And these people were cosmonauts,

like Miya. Still—"They take ransom. Slaves too. Don't trust them until we have to."

She looked at him doubtfully. "Are you always this distrustful?"

"Maybe."

She changed the subject. "I think you were right about a buried city. It's ten clicks west of here, so it's on the way. Let's give it a look."

He limped across a crescent dune. Then another, watched by Miya hovering left and above. Then a wide arc of rough-edged rock. "Miya? Meteor crater?"

"Right. Mars has a lot of these."

He favored his left ankle. There might be cracked ribs among all the other

aches and bruises. Fatigue softened the sensations and martian gravity softened the load. He stagger-danced, light-headed and light-bodied, feeling a bit drunk.

Above a horizon that was knife-sharp and too close, the tip of the skyhook tree still showed as a spray of silver blossoms. A small crescent rode above it.

A line of gourds faced the sun, each as tall as a small man. Something odd about them, or about the lighting, or just their presence on a lifeless desert. It was out of their path, but Svetz turned toward them.

Miya was amused. "You've got energy to spare?"

“Curiosity. Curiosity to spare,” Svetz said.

No wonder they looked funny. They were black where they faced the sun. In the shade they were pale. Chameleons evolved to conserve heat.

He was moving too slowly for Miya, so she zipped over to see the grove for herself. The grove lurched into motion, scattering at turtle speed. Startled, Miya almost plowed into a dune.

She returned and settled ahead of him. “Just animals. Hanny, what's our interest? Here, you ride for a while.” She handed him her flight stick.

There was a bag tied to the shaft. Svetz hefted it. Heavy. “Seeds?” He zipped the bag open.

She'd collected five yellow globes, big as a fist and heavier than Earthly fruit. Their rinds felt like ceramic. They had an apple's dimple and the melted stump of a stem.

She said, "Now all we have to do is get home."

He climbed onto the flight stick. Why hadn't she put him on the flight stick first? Assessing her partner's fitness? Or attitude?

Miya walked briskly, with a disconcerting bounce in her step that she brought under control by leaning forward. Svetz floated above her. She leaned farther, her feet pushing back, and farther, until she was running almost parallel to the sand. He had to speed up.

He could hear her huffing breath, but the skintight suit slowed her not at all. The dust-puffs of her footfalls were two meters apart.

She ran up the slope of a dune that blocked her path, crossed the lip and was airborne for more than a second. Her laughter rang in his helmet, and he joined in.

“You're wonderful to watch,” he said.
“Practice?”

“Two years! (Jet some rest... then I'll teach you.”

Another crescent moon rose behind the slender trunk. In a few minutes it emerged from behind the trunk and hurtled up the sky.

“Miya?”

“I've been watching.”

“Well, those moons are both bigger than the pair of wasted little captured asteroids we've been living with.”

“I know, Hanny.” She slowed to talk. “They don't look like that on present-day Mars. Maybe it's an atmospheric effect, some kind of optical illusion. Moonlight filtered through stratospheric ice crystals. Has anyone ever figured out why Earth's moon looks bigger when it's close to the horizon?”

“No.”

“We were right about the solar sails, though. The Hangtree is trying to steer itself. I wonder where it wants to go.”

“It left a set of roots at Hangtree City,” Svetz said, “and seeds for more.”

“But that's where it got hurt. Maybe it'll drop seeds in some safer place, or just move out and away.”

“Back where it came from?”

“It's built to settle planets. I think we're looking at a piece of genetic engineering by a race with techniques way ahead of ours. Hut Mars is ideal for an orbital tower. Low gravity, high spin, means the tree doesn't have to be as long or as strong. It won't find anything else that good in the solar system. It must have come from some other star, Hanny.”

“What's its second-best choice?”

“Earth.” Miya began to run again.

The horizon was a symphony of reds. A vertical black line crossed a hot white

point: the sun near setting.

They did not at first realize that they were running through a city. Nothing showed in the billows of sand and harder dirt beneath. But the path of least resistance was a lowlands that ran straight as an arrow. Then Miya's foot plunged through the surface, past her knee, and her chest hit the ground hard.

Svetz settled. He would have leapt off the flight stick to help her, but he could barely move. "Miya?" Thinking of trap-door spiders, he worked the needle gun off his back.

She wiggled her leg loose; stretched it and bent it. Then she looked into the hole. "It's eaten out under the surface," she said. "Only water does that Hanny,

there was water here.” Her hand felt around in the hole, then came out with black refuse. “Feels like old dry leaves or moss.” She stamped. Again. Turf collapsed under her heel, and fine sand flowed in like oil, hiding all evidence.

He asked, “Want to fly for a while?”

“No, I'm fine.” She began to run again.

Svetz limped along on foot, leaning on the floating flight stick for support, not trying to keep up. His cramping began to ease up. He wasn't trying to prove anything, just getting the feel of what was around him. It had worked for him in Earth's past. Here, stuck in a sausage skin- “Miya, how's your recycler doing?”

“No problems.”

All in one motion, Svetz threw back his bubble helmet (poof!), took a limp transparent bag from an inner pocket and pulled it over his head. He sealed it around his neck, tasting of just the least whiff of alien air.

The filter helmet inflated. The air tasted fine, with proper traces of carbon oxides, nitrogen oxides and petrochemicals. Something martian was still seeping through the semipermeable membrane. Meteor dust, dust of alien plants, and aeons of time. A bit too heavy on the carbon compounds. Now he could hear a thin wind brushing over low dunes and crater rims: a lonely sound.

“You all right?” Miya asked.

“Fine.”

“Then what's the point?”

“Nothing lasts forever. I don't know where the flaws are in these pressure suit recyclers. I trust a filter helmet.”

“Makes sense.” Miya imitated him. Now they walked with their bubble helmets thrown back.

Svetz's footfalls jarred echoes from below him. He'd heard that sound a few minutes ago and not quite noticed. Now-”I think we're walking on a roof,” he said.

“Is that what you were expecting?”

“Don't know.”

Miya shrugged. She drew her blaster. Svetz backed up a dune slope to give her room.

At a touch of the trigger, sand exploded outward, then flowed into a conical hole. The dune flowed downhill into it. They backed away as the cone deepened. Then the flow eased, and yellow light was shining out of the sand.

Svetz wondered, 'Troglodytes?'

"Clavius Base is like this. They could be human. Hold up," Miya said.

They waited for angry Martians to come boiling out. When that didn't happen, Svetz said, "I want a look."

"Here, take the blaster. Wait, the backblast--"

"No. Needles."

"Get your helmet up! It'll stop a bullet."

Svetz poked his helmet and needle gun

into the hole. "Nobody home. The floor's five meters down. I guess they didn't like bumping their heads." Some of the walls were transparent. He was near one of those. There was a silver pool below him, like quicksilver or molten silver, as big as a baby's bassinet. "I don't want to go straight down," he said. "You don't either. Are you carrying line?"

"Yes. Here."

He went in feet first with a line in his hand. He swung back and forth, then dropped onto bare floor between a pair of small couches.

Chapter 22.

They had a house of crystal pillars on the planet Mars by the edge of an empty sea... -The Martian Chronicles, by Ray

Bradbury, 1946 Their counters were clicking, but there weren't enough rads to hurt them. Miya traced the radiation to lights that glowed in the walls and ceiling. She looked them over and said, "Hanny, there's no way to replace these bulbs."

He speculated. "They're supposed to last as long as the house."

Miya kicked a wall of pink stone. It was meters thick. "That could be forever! Look where the corners are rounded on the stairs... and the walls, there where people would brush against them. Futz, they weren't ever expecting a new brand of light bulb!"

Light gleamed off pink sand beyond a glass wall.

They climbed into a red stone tower via a spiral stair. Its peak was just above the sand. Tall, narrow windows around the top faced in seven directions. Time had etched the glass.

“Arrow slits. I don't think they worried about lasers.”

They looked in vain for an escape tunnel or an airlock to keep sand out. The desert had come unexpectedly. Then again, there were no bones.

Miya took the temperature of the pool of silver lava: 190°C. “Hanny, it's a stove! That's a perfect cooking temperature!”

“And still hot? Check for rads.”

“It is radioactive. Stay clear.”

“Still think it's a stove?”

“Cosmic rays and thinner air. Martians might not be afraid of radiation.”

“Wrap the food in foil-”

“Or just dip it and let the hot metal drip off. I don't see any spatulas or forks. Would they just pick cooked food out of that with their fingers?”

Clearly there was no householder to attack them.

They never found anything like a toilet. Maybe the sand had buried an outhouse.

Opaque walls surrounded the back of the house. Here were two closet-sized rooms, doorless, separated by a mirror wall. In its center, a frieze of two spindly human shapes.... “Wrestling?”

“Having sex,” Miya said, “in masks,” and touched the frieze with her fingertips. The wall turned transparent. Another touch opaqued it. “Privacy. They could take it or leave it.”

“Where are the beds?” Svetz wondered.

Miya shrugged. They took the beds with them, or they disintegrated, or there weren't any because Mars gravity is so light....

Svetz found a touch plate.

Gray fog seeped from the floor. They backed out fast. Fog filled the room to half a meter deep. At the doorless doorway it hovered like a breaking wave.

Svetz watched for a time, then

reached into it. It sagged under his hand, congealed into foam like a too-soft mattress. He threw himself into it. It held his weight.

He cried, “Miya! Is this or is this not a bed?”

“Hanny, we have a mission. We've learned as much as we can here.”

There was a snap in her voice. He looked at her face to see if she meant it. She did. Chagrined, he rolled out. There's certainly something we haven't learned....

Before they left he got the other room to generate another bed of semisolid fog. Twin bedrooms, no doors. No closets. He would have liked to ask...

They climbed out the way they came.

“Teach me to run,” Svetz said.

“Are you up to that?”

“I can always stop.”

“Start by walking. Now you're bouncing too high. Feel it? You want to stay closer to the ground. Reach out with your feet. Lean forward a little. Now start pushing back with your toes....”

He tried to keep his run level, following curves to avoid up-and-down, leaning way over to take a curve. Miya flew alongside. His knee and back and ribs were easing up. They still hurt. He'd get medical attention when they reached Mons Olympus.

They kept to the heights. They'd seen that the old canal was treacherous footing.

Thin air had him gasping, but he ran for half an hour before he had to stop. Then Miya walked alongside him, not using tin-flight stick. Presently she asked, "What are you singing?"

"Don't know." A tune was running through his head. The music was there, and the thoughts, but the words didn't quite fit.

"... float past all our days," he sang, and reached farther, and found only: We dare not face the ocean's loss, A change already come. The world's long death must never harm This stove, these lights, our home. We build to hide ourselves from Time a stone and crystal wall And Time will float past all our days along the Grand Canal.

“Doggerel.”

“It's not quite right yet.”

“Ocean? Never mind that. Why are you singing?”

“I'm happy.” It was true: a grin was pulling his face out of shape. He let it have its way.

“Why?”

The gravity made every few footsteps a dance. “I fell twenty thousand clicks and I'm alive, I'm healing, I'm on Mars.”

“You don't care about Mars, Hanny. I talked to Zeera. You're ITR's best operative, but you're afraid all the time. You're no explorer. You tried to back out!”

“Why am I singing, then? Hey-”

“How would I know?”

“But I do! Miya, was that or was that not the last native martian bed you will ever see in your life?”

“And?”

“It wasn't any kind of a record you wanted. It was me.”

“That was then.”

“You could have said something. You didn't have to wait until we were moving through time.”

“That was then.”

The song still played through his head, lyrics writhing around a theme. Yes, things change, but she had loved him.

“How big a town was this, do you think?” Svetz pointed down toward the dry canal. “The canals that cross at Hangtree City weren't any bigger than

this. Look: smooth, then rectilinear lumps on the far side. Buried buildings. That shallow bulge. City Hall?” “Hanny, do you regard yourself as mission oriented?”

“Is that a cosmonaut's term?” He thought about it. “History isn't like astronomy. Miya, my briefings tend to be totally futzed. I've had to rethink my goal on every mission. Even this one. We've got the seeds that grow the anchor trees, right? Are we still looking for the seeds that grow the Hangtree?”

“Not on the martian surface, I wouldn't think.”

“And you don't think that big bulge could be a granary? Or a library?”

She didn't answer.

“We don't know how to find Hangtree seeds, what they look like, or even if the Allied Peoples have a billion of them in storehouses ready to launch at Europa.”

Her voice was turning brittle again. “We can't read Martian, Hanny.”

“It's not a library anyway. Likely it's something we don't have a word for. But you have to look, Miya. You don't find anything if you don't look.”

“We searched the Hangtree!”

“First you dream. Then you look in a hundred wrong places. Maybe one of those buried buildings is your library, and somewhere there are picture books or comic books, and in one of those you find pictures of the Hangtree and some seed clusters and a close-up of a seed.

Or maybe you find something you never expected at all.”

“A seed storehouse?”

“No, not that. Why store them at all? Let the tree deal with them. We were probably looking at the wrong end.”

“What?”

“Think like a tree, now. You're anchored deep in the watery soil of Mars. You grew an anchor grove and then linked to it, and now it's a part of you. Your roots close on the bedrock, way down. You grow more anchor trees in case you lose your anchor and have to reattach. You make Hangtree seeds too, orbiter seeds, because Willy Gorky needs them. But are you putting them in orbit? Why? You already have Mars.

Why do you want competition? You want your children on other worlds-”

“Yes.”

“It’s what you were made for. So you drop your orbiter seeds from the upper end. The far tip is swinging ‘round at better than escape velocity. It flings them at the stars.”

A long moment passed. They were both panting. Then, “How long have you been thinking like this, Hanny?”

“Only just. It always feels like I should have known right away, but it can take forever. I have to go down all these blind alleys first. I... eventually... get it.”

“All right. I’m starting to see what Zeera meant.”

Svetz was starting to wish he’d heard

that conversation.

“All we'd need to do is go get them,” Miya said. 'Take up position beyond the high end of the Hangtree and catch what falls. Hanny, what's wrong with this picture?’”

“You tell me.”

“It feels wrong. Throw seeds all over the sky? It's a strategy that works on Earth, works on a planet, but, Hanny, the sky is bigger than that”

“Futz, Miya, you can't steer a seed.”

“Ahh,” Miya drew it out, a long sigh. “Willy and his seeds. We're hung up on seeds. All right. We still need to get to Mons Olympus. Four thousand klicks across Amazonis, but we can do it I don't know our fuel situation. Maybe

Zeera's already taken care of that.” And she would say no more.

They'd been following the crests of three interlocked craters. The broad, dusty road that had been a canal cut through two of them, and time had worn them near to nothing. But the largest and latest impact had fallen on the canal itself. Svetz thought to find water hacked up behind the blockage, but it was dry on both sides.

“Hanny, why didn't we go look under that bulge?”

“Because we don't split up, and this is a space mission, and you've been on Mars and I haven't.”

They walked for a time. Then she said, “Hanny, I didn't realize you were

taking my orders. This is an ITR mission too. If you think about it, you've seen more aliens than I have. Pre-Industrial humanity isn't like us. They're closer to nature. They're surrounded by ten thousand times as many species as we've managed-”

“You want me in charge, Miya?”

No answer.

“I think Zeera's the official Head of Mission. Thing is, you clearly weren't taking my orders, so-”

“Hanny.” She pointed.

Beyond the next dune was another. Something slid over its crest like a caterpillar crossing the edge of a leaf. It had far too many legs. It was gone before he could see more.

“Something alive,” he said. “Big.”

“What? Really? I meant the house.”

House? Where she pointed ... where the crater rim abruptly ended, chopped through to make a canal, stood a clump of crystals. Two were of smoky transparency, two were the color of brick, and the nearest was black. Not much like a house, those structures. But now he could see the shadows of rooms, and- “I did see something stalking us, Miya. It looks like a caterpillar dreaming it's a tiger.”

The blaster was in her hands. Svetz cradled his needle gun. They eased casually toward a peak-the high ground-and waited.

“Doesn't have to be a predator,” Miya

said. "What would it eat out here?"

"What would it eat if it isn't?" "Mmm. Something living below the sand?"

"There," he said as it came over the crest of the nearest dune.

For an instant he saw why such a creature might want ten legs in Mars gravity. The beast didn't charge off the crest and maroon itself in the air and wait to be pulled down. It alowed over and down in a minimal shower of sand, bending like a caterpillar, its legs hugging the contours of the dune, and was already much too close.

Over the dunecrest and down to the flat and up the side of the crater, it came fast. It had a huge head in a collar of red fur, several rows of teeth, and four little

tongues splayed like flower petals near the back. Svetz fired anesthetic needles into the thing's huge and gaping mouth. In the last instant he twisted and leapt away.

The creature whipped around to follow, and stumbled. It tripped over its multitude of feet, and one side went down and it rolled. It rolled over Svetz. Svetz, half crushed, caught its weight on both feet and kicked.

The beast snapped at what it felt under it. Svetz yelled as he felt teeth close on his ribs. They slid off the slippery skintight and snapped shut on his silver cloak. That ripped like tissue.

He was alive. He lay as he'd fallen, taking stock. No blood, no torn flesh.

He'd look at bruises later.

The needle gun didn't look broken.

The ten-legged predator lay twisted on itself and glassy-eyed.

Miya?

Miya hovered on her flight stick, looking down. "Hanny?"

He tried sitting up. "Fine."

She had pulled her helmet over her head. "I saw another one."

"Why didn't you use the blaster?"

"Hanny, it was too close. I lofted the flight stick and climbed on after I was up, because I d-didn't want to come down, after all, and by then it was on you."

"Use it now." Svetz set his own helmet in place and looked around. He

would have to find a target before he could zoom on it. “See anything?”

“No.”

“My bruises have bruises on them.” He started walking. He could still do that.

“Anything we do with a blaster could mark us for any aircraft,” Miya said.

“Right. Will you look at this?”

They stood like quartz crystals thirty-odd meters tall, almost vertical but leaning a bit at odd angles. Two crystals might have been made of cut pink brick. Two were of smoky glass. It still looked like a geological outcropping, but within the glass Svetz could see rooms and spiral stairs.

The near side of this nearest structure

was a black wall painted with blurred pink silhouettes. One, high up, had the shape of a bird or big insect. Three could have been human athletes, a child and two adults, if one adult was wearing a helmet or had a head the size of a watermelon. The big-headed one was holding a weapon or baseball mitt or Jai-alai basket. And the fifth silhouette was a black circle, a ball or discus in flight. The bird was diving on it.

“Energy weapon,” Miya said.

“Might be just paint.” Svetz touched the child's silhouette and felt the raised edge. “Nope. The flying woks have energy weapons that could have done this.”

“They fought for the last of the water.

Bet on it. Hanny, let's be careful. People who fight like this might set traps too."

"We should be on the roof."

"No, we just don't use the door."

Miya fired at a transparent wall and stepped through the hole.

Svetz backed after her. No ten-legged tigers followed them.

Here was another pool of silver lava. Miya took its temperature: 190°C. "Same as the other one. I was right, it's for cooking. Up the stairs, those little staggered platforms are where they ate."

"Let's stay here. The beasts won't come into a house."

"Hanny, is that your expert opinion?"

Would he stand behind that? He would. "Anything that thinks like a ten-

legged tiger won't trap itself in this maze of rooms. Furthermore, it's my expert opinion that I need rest. I don't know where you're getting your strength, Miya. I've run out."

He didn't wait for an answer. The sleeping rooms must be in one of the opaque towers. He borrowed the blaster and shot a hole in a wall. Up the spiral stair were two matched cubicles bigger than closets, and a glass wall with a faded obscene frieze on the glass.

The touch point in one room got him nothing.

The other deployed gray smoke that half-congealed to a springy bed. He heard Miya behind him, and he said, "Mine." "One of us should stay on

guard,” she said. “Me?” “My mind's foggy. Do it. Wake me up when you can't stand it anymore.” He started to strip off his pressure suit. Just opening zips was enough to tell him that the air was martian-cold. He kept it on. The gray foam accepted him and he slept.

He woke.

Miya was on the stair with her back to him.

He rolled out of the foam. He touched her shoulder and she jumped. “Four hours,” she said. “It's still dark out. Nothing threatening. The moons-well, look for yourself. How's the bed?”

“You're going to love it,” he said.

She nodded. She crawled into the foam.

Feeling the need to stretch, he went downstairs. He felt elated. Maybe that was only the bouncy feel of Mars gravity. There were no windows upstairs or down. The only light came from the forever bulbs. He armed himself before he stepped out.

Behind the sharp, close horizon was a silver flower, the Hang-tree with solar sails deployed. That would be west, then. The Hang-tree in its higher, slower orbit must be near setting.

Above the Hangtree, one of the hurtling moons was a glowing disk smaller than Luna but still too large. He watched it for an hour or so while he stretched against yesterday's kinks and injuries. The moon rose up the western

sky. It was pale and featureless... but it was changing phase, from full to a fat crescent.

Maybe Miya had guessed right: that was moonlight on stratospheric ice crystals.

The corner of his eye caught motion.

He jumped straight backward through the doorway. The dark shape resolved, all teeth and too many legs, and slammed into the jamb while Svetz completed a backward somersault and jumped again, straight up three meters of stairwell. The beast roared like a high-pitched jackhammer and pushed through into the house. It was as big as the door.

Still in flight, Svetz screamed back, "Miya!" in case the beast's roar hadn't

wakened her. The curve of the stairwell caught him. Now that his feet had some purchase, Svetz reached for the needle gun on his back.

Too slow! The beast flowed up the stairs and Svetz had to jump again. Its roar froze him and he landed badly. Miya must have heard the roar- Miya was in the bedroom door with the blaster in her hands.

He stumbled past her, snatched at the doorway, turned with needle gun in hand. Too late. Miya fired downward. Her backhand slapped his chest, sending him into the other bedroom as the blast roared back up at them.

He waited until he couldn't hear anything before he crawled out.

The beast was gone. Below the upper landing, both lower landings and half the stair were gone. Shrapnel had spattered the living space below.

Miya said, "What a rush!"

"My hero," he said. He craned his neck to see if the flight stick had survived. It looked untouched.

Miya said, "There, there, my pretty one, no danger shall harm you."

Svetz said, "We're doing this all wrong."

"It's dead. We're alive. Sorry about the stair."

"No, hear me out. We can't walk a quarter of the way around the planet! We've got one flight stick. I stay here. You take the flight stick to Mons

Olympus. Debrief Zeera and vice versa, then come back here with Zeera's flight stick and we'll fly back."

Miya thought it over. Presently she nodded. She said, "You're the boss."

"I don't know how to give orders. I was alone on every mission."

"There has to be a boss." She looked over the landing's fractured edge. "Long way down."

"Nah." Mars gravity. He jumped.

She caught him by his backpack frame and lifted him. "You'd just have to come back up," she said.

"That's right, you've only had an hour's sleep."

"Never mind that. Take off your skintight."

“Why?... oh. Miya. I'm getting whiplash here.”

“What do you moan?”

“I thought you'd made yourself pretty clear, so I gave you up. I'm not sure how often I can do that.”

She sat down on the edge of the landing and swung her legs, not looking at him. “You work for the ITR. I work for Space Bureau. Most of the time we wouldn't be in the same time or place.”

“I hadn't thought that far.” He sat down beside her.

“Had you thought of transferring?”

“We could ask. X-cages don't generally carry two crew. Me, I'm not a cosmonaut. But we could ask.”

She sighed.

He asked, “You want your hero's reward anyway?”

“Sure.” She moved to kiss him through two filter helmets, and caught herself. She began opening zips instead.

Svetz watched her nakedness emerge while he dealt with his own. He didn't know where the zips were on a skintight pressure suit. It slowed him. Miya opened a score of zippers in a few seconds' time, then started helping Svetz with his. Suddenly she yelped, “It's cold!”

Svetz grinned. “I wondered!”

“Well, how the futz-” She saw the only answer. She zipped, zipped, and pulled, and Svetz leapt naked into the sleeping room with Miya on his tail.

She was the only warmth in the world. The congealed gray fog wrapped itself partly around them and held some of their heat. "It's still futzy cold," she said.

"Well, try to remember why you slept in your pressure suit."

"Oh, was that it? I thought I was too tired to take it off. Or maybe I just hadn't decided, Hanny. But a thought finally plods across my sluggish mind. Zeera never saw you on a mission."

"No, of course not."

They had to keep the filter helmets. They still couldn't kiss. The gray foam impeded their lovemaking. It tangled them. Svetz finally got enough of his arm free to reach a touch point. The fog softened to mist and seeped into the

floor. Miya pulled them together in frantic reaction to the cold, and they connected.

And presently broke free and sprinted for the skintights.

“How the Cut/ did Martians do this?” Miya asked, and went back into the room to look at the frieze. “Hanny-”

“Did it without the bed, didn't they?”

“Right. Kneeling.”

“The bed's only for sleeping, bet on it. If Martians had seen us they'd have laughed themselves sick.”

“Well.” They grinned at each other. Then... skintights weren't good for coitus, but they were fine for cuddling.

“I was furious with you,” she said.

“That's what I thought, but I couldn't

see why.”

“For letting me think you were dead.”

“Miya, I couldn't tell the difference myself!”

“How are you feeling now?”

“Beaten. There are places where I don't hurt. Miya, what's your fantasy Hanville Svetz like? Is he taller? Brawnier?”

“Braver than Zeera thinks you are. Agile. Nonlinear thinker. Heals fast.”

“Does he negotiate or give orders?”

“Depends. You talk it out when there's time. Hanny, I'm describing what I see.”

“If you see that when we get home-”

“If Wrona will have me.”

Chapter 23.

... across the gulf of space... intellects

vast and cool and unsympathetic, regarded this earth with envious eyes....

-The War of the Worlds, H. G. Wells
After she was gone, Svetz tried to guess how long the flight would take. Moving at high altitude through Mars' already thin air, Miya could make a hundred and fifty klicks per hour. Mons Olympus was four thousand and a bit, far around the curve of the planet, but with no chance of getting lost. Mons Olympus would loom like a piece of the sky.

Twenty-five hours. Give them an hour to debrief. Twenty-five coming back.

He stayed in the Martian house, that first day. His injuries had stiffened up.

By noon of the second day he was beginning to starve.

The suit would conserve water-as the filter helmet would not-but it wouldn't feed him. He had to distract himself somehow.

He went exploring. He stayed on the bare rock crest and kept his needle gun in his hands.

They might have been a pack of wild dogs, all hunger and teeth, in the moment he glimpsed them. They flowed up the rock slope in a surge that was like so many maglev trains. He fired carefully into their mouths. The nearest fell at his feet.

They were miniatures of the ten-legged killers, no taller than Wrona but three times as long. They were dead. The anesthetic had shut down their

breathing.

He dragged two back to the house.

Svetz dissected one, talking his way through it for the record. He learned little. They had the wet red interiors of mammals. He could identify a single longitudinal lung. A stomach segued smoothly into an intestine that coiled neatly down the abdomen.

He cut up the second adolescent and dropped the legs into hot silver metal. He had read of this: that men and women had killed animals for food. He didn't believe it until he lifted his filter helmet to free his mouth. Then the smell hit him. He did not decide to eat; he found himself tearing meat from the bone with his teeth.

It was good! He nearly broke a tooth, he had to learn to chew around the bone, and the meat was tough, but he was ravenous. He made himself stop, appalled at himself, and waited to see if he'd get sick. A hour later, he gorged.

He deep-fried the rest of the legs and several strips of what he thought was muscle, zipped it all into sample bags and set it outside where the martian cold would keep it.

Night. The Hangtree was below the horizon, not even a silver highlight now.

Noon of the third day: now he could begin to worry. Miya didn't answer the beam. He waited through the fourth day.

In the afternoon there came a dust plume on the horizon. Svetz zoomed on a

spidery crucifix moving across the desert. It resolved into a low-built vehicle.

The helmet said, "Hello, Hanny!"

"Is that you? West of me, on the ground?"

'Yes. I couldn't get to Zeera. We've only got the one flight stick, but I found this.'

Miya was sailing along the dry canal. There was a wheel under the open cabin and four more wheels on long springy booms, and sails splayed on a mast and the booms.

He ran down to meet her.

"Get aboard," she said. "I don't want to stop in one spot. We might sink."

Svetz tossed his burden in and

climbed after it.

“What's that?” - 'You hungry?’”

“Don't ask.”

“Here.”

“What is it?”

“Don't ask.”

'Take the wheel.” She examined the leg briefly, then ate as he'd showed her, helmet back, filter helmet on. Lift the edge of the filter helmet, bite, close it.

“Just keep us pointed west. Stick to the canal,” she said. “It's light enough, it won't break through the crust. Hanny, this is good. Are you going to tell me-?”

He told her. She asked for more.

Zeera was pinned down with monsters all around her. Miya couldn't get near her. They'd talked by beam.

“Is she hurt?”

“No,” Miya said, “but she's given up. I had trouble getting her to talk at all.”

The crater in Mons Olympus was an observatory. Zeera had looked down into a vastness of telescope mirrors. Square clicks of mirrors and framework still didn't fill much of that tremendous crater.

The Tanker was half hidden in a tangle of structures, two clicks northeast of the crater rim. A laboratory and army bivouac had grown up around the Tanker. When Zeera hove into view, they fired on her.

She flew out of their range and uphill before she brought the Minim down.

“Did they damage the Minim?”

“Not then and not after, but Zeera says they could, any time,” Miya said. “Now the Minim's surrounded too. Zeera's safe in the cabin, but they shot at me as soon as I got close.”

“Projectiles?”

“No, they've got blasters! Big heat beam projectors! Did you know the outer hull of the Minim is a heat superconductor? Makes reentry easier, but it also means a blast of heat won't melt holes in it.”

“Did you try your blaster on them?”

“Hanny, I thought I'd better get you first.”

Instead of leaving him four thousand clicks away, without air, food, water, or transport. “Good. I'm still catching up

here. They've got a whole laboratory around the Tanker, right? And it's been there for years? We're lucky if they haven't taken the Tanker apart. Did it look all right?"

After long silence Miya asked, "Hanny, how the futz would I know if they drained the tank?"

Svetz said, "Get some sleep."

Driving a sailcar was fun. He'd had days to grow used to the screaming wind; it lost force now because they were racing ahead of it. The car was rolling too fast to sink through the dried dust. The canal was so wide that he couldn't see both rims at the same time. It would be hard to hit anything.

A line of big birds, needle-nosed and

wingless, chased them for three or four clicks and never quite caught up. Svetz wondered if they were his dinner, then if they were chasing their own dinner. They looked to be just having fun. But the nearest one seemed to be wearing-
“Miya, give me a sanity check.”

She wriggled around to look where he was pointing. Zoomed her faceplate. “That thing is wearing a belt. Or maybe it's a collar. With tools hanging on it.”

“Matth said there are five sapient species in their funny alliance, plus the observers. This would make seven intelligent species, right? How could this many all evolve together?”

“Can't,” Miya said.

“They could evolve separately,”

Svetz mused. "It's another quantum mechanical thing."

"I'm tired, Hanny. What are you talking about? Time lines merging?"

"Yes, just before everything ends for this whole world. Like virtual particles, no investigator is supposed to see this."

"But we're seeing it."

"Maybe we're not supposed to be here either."

But Miya was asleep. In the morning she remembered nothing of big needle-nosed birds wearing tool belts.

Come night, Miya wanted to keep moving.

They mounted her flashlight on the roof, pointing straight up. She hovered above him on the flight stick, in the

beam, while Svetz sailed.

At midnight they switched. Miya made him take the blaster. He showed her how to use the needle gun.

At dawn Miya slept again. She didn't wake until near sunset Svetz got an hour's sleep before night fell, and then they both had to be awake to drive.

After two days of driving she was caught up on sleep.

Dawn: he flew above dark green canyons cutting through red desert. Far ahead was a row of... something repetitive. He took his time descending.

Pyramids. The row began above the canal, and the first was no bigger than a fist. Each that followed was larger, and each had been broken open. The row

descended to the canal floor as if tin-architects had mindlessly followed the disappearing water.

The line continued. Built on the floor of what had been a canal, these last could hardly be ancient tombs. More like row houses.

The last was as big as a mansion, and the peak was missing. They gave it a wide and wary berth. They were already past when Svetz saw a skinny arm emerge from the pyramid with a rounded brick in its hand.

Midnight. Miya brought the flight stick down to the aft boom, tied it, walked forward. They traded places at the wheel. Svetz crawled back along the boom. He didn't have Miya's balance,

and it was very dark.

Svetz flew high. The tiny flashlight on the sailcar was a bright pinprick on black land. A moon ghosted overhead, west to east: Phobos, a featureless pale lamp much larger than any tiny captured asteroid. Stratospheric ice crystals? Its light illuminated nothing until he'd flown for hours, until his night vision began to adjust.

Below, wide to the left and far aft, motion reflected the moonlight.

Svetz moved out of the sailcar's flashlight beam. He could still see the light as a wobbly line of lesser darkness in his peripheral vision. An intruder in the sky was catching up with them, their paths slowly converging.

“Miya?”

“How you doing, Hanny?”

“We have company. Turn the flashlight off.” Already the intruder was an enemy. Strangers met during his trips to Earth's past had usually been suspicious, jumpy, ready to kill a man who didn't dress like they did.

He used his faceplate to zoom on the intruder. He got a jittery image of a smooth-surfaced silver lens. “One ship. Big, I think.

Flying double-wok, rounded, with no decks. Not the same style as Skyrunner was. Some other race.”

What had Matth called them? Skyrunner had been destroyed by a ship like this, armed with a heat cannon.

The intruder was nearly alongside Svetz, but far to the left. Svetz dropped the zoom. At once he saw the second ship, fly-even higher than Svetz and just above the larger ship, tending it.

He watched it for some time before he saw it swing right, abandoning its post for something more interesting. The second intruder had seen Miya.

Svetz saw the lens-ship tilt nearly to vertical. Saw an aperture open in the rim, and that was enough.

“It's after you,” he said. He'd been keeping the blaster in a zipped pocket. He drew it carefully, knowing how much he didn't want to drop it.

“Shoot it!” Miya demanded.

He fired. “Way ahead of you.”

The smaller ship rocked in the jet of flame. It fired a wild actinic jet of its own. Not a laser, it spread too much, but it didn't spread like a rocket exhaust. Maybe a plasma jet held together by its own magnetic fields.

For an instant it held, and then the flying wok flared. Svetz saw the ship shred itself inside a dying fireball.

He lifted. He could do that by touch. There was nothing solid above him. Eyes aboard the large intruder might have seen him when he fired, as the point on a line of white plasma; but now he would be only a dark dot on the sky.

“Hanny, report! I saw-”

“I got the little ship. The big one had to have seen me. I'm lifting. They'll try to

chase me. There's no chance they'll find you until dawn if you'll just turn off that futzy flashlight!"

"I did. Why not just shoot them down?"

"I blinded myself."

She didn't say anything.

"There's nothing that can hurt me this high," he said. "I'll just wait for my sight to come back."

"Good plan." Miya sounded jittery. "Look, if you don't find me then, just keep west to Mons Olympus. Get to the Minim."

"Right."

He couldn't see. It was chilly without his cloak, but no worse than chilly. The flight stick flew on, altitude unknown.

Miya called not much later. "I saw where the wreck hit. I'm going to look it over."

"Bad idea," Svetz said.

"In and out quick, trust me."

It felt like hours passed before she spoke again. "What did your rebels call them? Softfingers? I've found parts of at least four bodies. They look like dry-skinned octopuses. They've got ten arms with no bones in them. They're bigger than men. Oversized heads with an external skull, and big bulging eyes.

"The undersurfaces of the tentacles are thick with callus right up to the... shoulder. The underside of the pressure suit is a curved plate, a skid. I pried one up. It's covering the air supply. The

mouth is on the bottom.” Pause. “Hanny, do you remember Gorky's maps?”

From footage taken by the descending Tanker, Gorky had made maps of every size. They'd all studied them so that they could find the Tanker.

“Remember a white rock formation on Mons Olympus? It looked chopped, sculpted, but no special shape? Well, that was a Softfingers skull.”

“Charming.”

“Hanny, I found rolls of mirror cloth. It's solar sail material harvested from the skyhook tree's leaves.”

“An innocent cargo ship? They had one futz of an energy weapon.”

“Aye aye, but I sure hope we know what we're doing.”

“Miya, get out of there before they come to bury their dead.”

“You don't know they... right”

Something blurred and bright floated in his sight. Joy flooded through him: his sight was returning. He watched it for a time, trying to guess its size and distance.

“Miya? Is it still night where you are?”

“Sure. How high are you?”

“I can see the curve of the planet.” An arc of light, without detail. “And I can see Mons Olympus.” The crater's rim was aflame with dawn. No mistaking it now, though his sight was still blurry.

“Go for it.”

Chapter 24.

He said, “Zeera?” and waited.

These were the foothills of Mons Olympus. The mountain looked like a tilted continent from this close. Zeera should be in line of sight.

“Hanville Svetz calling Zeera Southworth for the Institute for Temporal Research. Zeera, answer.”

“Svetz?”

“Hi, Zeera. What's happening?” !

“They shoot at me when I try to take off. If I try to work the airlock, they shoot. Sometimes when I look out.”

“How many? Where are they? Can you see them?”

“They shoot at me when I look! They've got things like blasters, but big!”

“How much damage have you taken?”

“I can't tell. Maybe none. The blaster only shoots heat beams, I think, and it recharges in ten minutes. There are two at least. The Minim's hull superconducts heat, it can take that much energy and radiate it away before they can fire again, but my engines overheat and shut down and I fall about a meter! I did it twice more. I thought you'd need the data.”

“I'd need-?”

“You, Miya. somebody!”

He heard the edge of hysteria in her voice. She wanted rescue! He said, "Well, I'm here."

"Just stay away. You'll go like an ice cube in coffee."

"I can't leave things the way they are. We'll starve. You've got all the food. Zeera, did the Tanker look ruptured?"

"Not ruptured, but they took off one of the landing motors and tested it," Zeera said, "and they built a kind of token wall around the nuclear pile. Radiation must have made someone sick."

"They didn't cut the cable?"

"No, they're letting it run."

"Who am I fighting?"

"I started a war, coming down. The people around the Tanker were human."

These things with all the arms and no bones, they're astronomers. I'm not guessing, Svetz. They use radio. I tuned in and used the translator. There was some kind of long-term truce. The men had the Tanker and the... astronomers-"

"Softfingers."

"-Softfingers had the telescopes, but they both saw the Minim come down, and that set things off. I heard them fighting over me."

"Sanity check," Svetz said. "You hovered above the crater because you wanted to see the telescope setup. The Softfingers saw you then. Then you went into a landing pattern over the Tanker. They fired on you?"

"Yes, the men. They had impact

weapons. I put some mountain between me and them, fast, but I could see the astronomer ships coming down at me. They've got aircraft like two saucers set lip to lip. They were blasting the camp around the Lander when I got out of sight. One came after me. He got me with a heat cannon. My engines started to shut down. I hit the override and got down as fast as I could, and I've been here since.”

“Okay. Stay put. I'm on it.”

“The astronomers killed most of the people and kept the rest as ... the translator says slaves. Hanny, what are you going to do?”

“Maybe I shouldn't tell you. If you heard them, they could listen to us.”

Svetz didn't believe they could translate, but he didn't have a plan, either.

He was well up Mons Olympus now, just a few clicks high, though that still put him above where a man could breathe. He might still be too small to notice, but as soon as he fired a blaster, they'd be after him. The Tanker had taken pictures all the way down. Gorky had maps of every size, and Svetz had studied them for months. He didn't expect to have trouble finding the Tanker. But where was it?

He could not keep circling forever in hope that something would look familiar.

Wait now... he knew that white rock formation from Gorky's maps. Miya had dissected a Softfinger, and she said this

was the shape of its skull. So the Tanker should be ... there. Svetz looked for a compact silver bullet shape. The Tanker was Moon-built motors, turbines, compressors and the nuclear pile to power them, but most of its volume would be tanks.

It was there. It was nearly hidden in a maze made up of ladders and pipes and flattened spheres, a long silver line of cable that led to the nuclear power source on its tractor treads, a dismounted rocket motor braced against a hillside, and a score of little buildings too pretty to be prefabs, too hastily built to be houses... martian work in the style of Hangtree Town ... and two bigger structures that looked more like

beehives.

Still, he could not imagine how he'd missed the Tanker. It sat on the highest flat spot the Tanker's computer could find. Space Bureau wouldn't hide the fuel it would take to get their samples home!

“Zeera, I have the Tanker in view. Tell me again how you get them to shoot at you.”

“Any time I try to take off. Any time the airlock door wiggles. Sometimes if they see me in the flight dome, they blast a granite outcropping. I'm right under it.”

“So the rocks around you would be covered with scorch marks, would they?”

“Yeah! Look for kind of a big rounded

granite skull. They shoot it any time I poke my head into the flight dome. They shot the eyeholes first. Now they're shooting just over my head and making gaps for teeth. Human skull.”

He'd found another little beehive high above the Tanker, beside what might be a heat cannon, though he'd never seen a weapon like that one. A line ran down to a patch of black cloth or paint. Heat radiator?

He flew wide around.

Zeera couldn't have flown very far... and she hadn't. The human brain is configured to turn random patterns into faces. The moment he glimpsed a skull carved into the granite cliff, he dropped, then eased the flight stick uphill.

He was rising up an arc of ridge, maybe part of an old mete-oroid impact. Mountains weren't immune. The ridge might hide him. He eased up the slope, then veered away fast. At the crest was another beehive-shaped building.

He followed the ridge around and came up at the other end.

The Minim was in a shallow dish, the impact point of that old meteor strike. It was about the same size as the Tanker. Most of the Minim must be tanks too: he knew how cramped the skimpy cabin was. The cone at the top was the flight dome. He'd expected to see Zeera inside, but he didn't.

The beehive hut had the Minim in full view, and a good view of the blasted

cliff. Through a door-one meter tall, two meters wide-he could see a small telescope pointed at the Minim. The heat cannon was a big tube on a massive swivel. What must be a control chair was mounted in the swivel, behind the tube. A black strip-not a cable, more like a line of paint-led to a broad black patch on the slope below.

Fine. "Zeera?"

"Hanny?"

"Wiggle the airlock door for me."

"Why-" She chopped it off.

Svetz didn't watch the Minim. He wasn't looking straight at the gun either: he'd been blinded once already. He watched for the line of flame that speared down from the granite skull and

bathed the Minim.

Svetz said, "Wait it out, then stand up in the dome. Eyes closed."

The flame died. He looked up the granite mountainside, past the crudely blasted skull pattern, and found the wok ship perched above the eye sockets. A point on its rim was glowing orange, brighter than sunlight. "Now. Stand up. Wave," he said. If Zeera was right, the wok ship couldn't fire again.

There was no second blast.

"Good. Thank you, Zeera," Svetz said, measuring angles with his eye. Two guns, she'd said. They'd held the second in reserve, and that had to mean that there wasn't a third. Right?

He took careful aim on the wok ship,

and fired.

Immediately he lifted and dropped below the ridge, swept around the curve and rose on the blind side of the beehive hut. Fired and held his aim. The hut flared into a rising fireball, and behind the fireball was the heat cannon glowing orange and red, and flame colors streaming from the control chair where there had been a Softfinger gunner.

The wreckage of the wok ship was still rolling downhill. Svetz rose into full view, held the pose for a long moment, lifted at two Earth gee, looped and dove behind the ridge again, circled far around and rose, making himself a target.

Nothing.

“Open the airlock,” he said, already diving. “And get me a ration bar!” At the last moment he veered hard, looped-still no heat blast-settled into the airlock and punched the cycle point. He was aiming through the outer door until it had actually closed.

He'd done it.

The inner door opened. Zeera gaped at him from one of the command chairs.

He was gasping for air that wasn't getting through the filter helmet fast enough. He pulled it off and took the ration bar out of her hand.

He went through them as fast as possible, the things he'd planned if he got this far: Eat! Stuff more ration bars in his pockets for himself and Miya. He

ate steadily, and talked through a full mouth.

“Zeera, find the maps the Tanker made coming down.”

Zeera nodded. Where he'd been expecting joy and gratitude, she only looked exhausted. But she set to work. Presently she had the display he remembered, complete with Willy Gorky's overlaid contour lines and notes. “Yes. Now, Zeera, what did you see coming in? Sketch it for me.”

She looked up. “There's more.”

Put the needle gun back on the wall. Fat lot of use it would be on Mons Olympus, where every friend and enemy wore an armored pressure suit! Plug the blaster into the wall for a recharge. Take

down the other, freshly charged blaster. He was fizzing with energy. It would be dreadful if he forgot something crucial, and they couldn't have very much time.

Take a sonic too. There was still enough air to transmit sound. Blasters made noise, but the sonic stunners were too shrill for human ears. What kind of ears did Softfingers have?

Why was she still looking at him?
“Zeera? There's more than what?”

“Svetz, they've shot down the Orbiter.”

“What?”

“I was linked up and recording. Multiscreen, orthogonal views and a window for data. I thought I could learn something more before I landed. The

Orbiter was crossing over the tree, and then something came up from the Mars direction and hit me between the eyes and everything just went! It's gone, Hanny. We can't go back to Earth."

He absorbed that. "No wonder you're a little twitchy. A week ago? Trapped here with nobody to talk to and nobody to help. Have you been eating?"

"Eating? Yes. Sleeping, no."

"There are things we have to deal with now. Maybe none of the Softfingers saw me burn this place out and nobody got a message off, but that can't hold forever. We should be out of here. Can you expand this map?"

"They'll kill us."

"They will if they find us still here."

They've got more than heat cannon, Zeera. They took projectile weapons off the huinanooids. We need to move. I want you to rescue Miya."

"I'm low on fuel."

"How low?"

"I saved some, actually. The Minim wasn't as massive coming down, because you and Miya weren't in it." Her hands moved. Displays changed: she'd set the Minim's pile to warming. Then the map shrank and all of Mons Olympus was in view. "Where is she?"

"We've been following this dry canal. I don't know what she'll do when she gets close, and I don't want to lose her. You take off, you follow the canal until you see a car with pale blue sails."

Unexpectedly Zeera giggled. “Right, so I can tell it from all the other sailboats running around Mars. Svetz, it sounds like fun!”

“We've been starving.”

“H-”

“It was fun.”

“Svetz, what if they follow me?”

“You're on a ballistic parabola. These martian ships are dirigibles. They can't follow you, but they'll try. Anything that lifts off, I shoot it.”

“Shoot it?”

“I burned down a wok ship last night. I'm armed and maneuverable and too small to see.”

“You start a war and they'll wreck the Tanker!”

“The Tanker has the same superconducting shell that saved you.”

“They stripped off some of it. Didn't I say?”

Futz! Svetz said, “Zeera, they still can't kill us. The Minim's safe. They can only trap us again. So in a few minutes I'll take my flight stick out and bring the war to them.”

She nodded. “Bring the war to them,” she repeated. “War? I don't expect they'll worry much about one man on a flying stick! And if you kill everyone on the mountain, we still can't get home!”

“Zeera, it's not as bad as that. We can use your FFD to move us.”

“Say again?”

He'd hated the use of initials all his

life, and now they had him doing it! “The Institute's Fast Forward device that got us here in the first place. Turn it on and ride it to present time. Base One is buried, so we can't find it without Miya, but she knows the codes that'll get us into the Base. Of course Willy will want our heads.”

“Fast Forward. I never thought of that,” Zeera said.

Good! “One more thing.” Svetz took the bag from Miya's flight stick and spilled five golden globes. “We've got seeds. We both think we only got the seeds that grow into roots to anchor the big one, but Willy can't scream too loud if we cut the expedition short.”

“Oh, Hanny, that's great!” She picked

one up. "Futz, it's heavy."

"Storage?"

"There."

While Svetz put the seeds away, Zeera was at work. "Hanny, I've got the Minim on a ballistic trajectory down to here, where the flats meet the foothills. It's where the canal peters out. I'll phone her once I'm out of these rocks. It looks like I've got fuel to get back up, but I can't hover at all. Up and down and unless I spot her in time, she'll have to come to me. And the Minim can't fight. You'll have to do that."

Chapter 25.

Svetz went out the airlock, over the ridge and down and around and up the mountain, following the route he'd

marked using Zeera's map. By now it felt like he'd been born riding a flight stick. He was moving fast as he rose into view of the Tanker and the laboratory facilities around it.

The Minim lifted into view. The flame of its exhaust wasn't much brighter than the daylit mountain.

There were octopoids everywhere. Several were sunning themselves on the hill. What looked like an open cafeteria served several more. A few wore what must be pressure suits, star-shaped with a glass dome in the center. He wasn't trying to count, and he'd miss some anyway. Twenty in view?

Big eyes bulged beneath the skullcap shells. A few had noticed the tiny

Minim. Svetz was rising fast, and now he couldn't tell if any had seen him. Nobody was shooting at him.

He hadn't seen any wok ships on his first pass. He didn't see anything in the air now. He did find two beehive-shaped huts and the heat cannon mounted beside them, looking down from the edge of a mesa.

The Minim's rocket flame went out and he lost it.

Svetz and Miya must have been shot at by every kind of Martian who ever stalked the nightmares of primitive Man. Even so, the danger Svetz feared most was Zeera Southworth.

Zeera was on a short fuse, and that put Svetz on a time limit. If she was really as

desperate as she'd seemed, then all she had to do was abandon her crew, turn on the Fast Forward device and ride to the present. Find Base One-which was buried, but surely they'd mark it with paint! No need for Miya's codes if Zeera could talk her way in.

Svetz and Miya would be left as involuntary colonists on a doomed world.

He'd done what he could. If everything went right, Miya would be with Zeera, safe until Svetz could join them both. The trick was to move fast.

He rose level with the mesa. It was painted with a gigantic ten-pointed asterisk. There was a bigger beehive building at the edge. He pegged it as a

broad landing field with warehousing, and no aircraft currently in residence. Where was the big wok ship?

If he'd seen a ship he'd have had to go after it. Seeing no ship, he had a problem. He'd seen a big wok ship last night, coming here. By now it should have reached Mons Olympus crater.

He was rising fast. The wind blew straight down, battering at his bubble helmet. Then glare-white plasma blew past him from below and he knew he'd been seen.

It missed him by a fair distance. He'd left the asterisk far below. The lip of Mons Olympus crater was near, and he turned off his lift and coasted upward.

Radio messages must be alerting the

observatory even now.

He'd hoped to reach the observatory without giving warning. Too bad. They might be expecting him, but they couldn't expect what he was about to do.

The crater in Mons Olympus would have held all of the Hawaiian islands.

Dots of sunlight glare ran in rays along the bottom, tremendous sheets of mirror in a far larger array. Two or three square clicks of landing field had been marked off with another asterisk. As Svetz dropped closer, he could pick out a hexagon of beehives, and then the big double wok ship. A score of octopoid astronomers were unloading cargo from a big hatch under the rim.

If everything else works out, Svetz

thought, the Minim will still have to be refueled. There must be nobody to attack the Tanker while we do that. Best to take out everything that can fly, now.

He tried not to think how many Softfingers he would have to kill. He was not used to killing people.

Svetz dropped toward the ship, took aim beneath the hatch and fired.

In daylight the light didn't blind him. He played the flame against the ground, bouncing the backwash into the ship. Bearers who weren't caught in the flame dropped their burdens and fled into the shadow of a mirror. With all their rubbery limbs functioning as legs, they looked like so many pinwheels. But he'd killed ten in less than ten seconds.

Then the big double wok lurched into the air and turned with its hatch closing, and Svetz was falling too fast. If he didn't lift quick he'd be nothing but a smear.

Lift and thrust. The flight stick pulled out of its swoop, and Svetz ran beneath several acres of mirror, slowing, slowing. He didn't want to ram the framework! No hurry. Softfinger astronomers would flinch from firing on their own mirrors.

They flinched, maybe, but they fired. He saw flame wash around the mirror's edge, and he turned away. There were big arcs and pillars under the mirror fabric to shape the paraboloid. He could see well enough to dodge.

He emerged into sunlight and immediately veered under another mirror just ahead of a blast from above. And emerged again, almost under the big ship's belly.

The ship flew tilted, but the aperture in the rim wasn't looking at him yet. He lifted hard, firing at the ship's belly, and rose past the rim and fired down. The disc was spinning on its vertical axis, heat cannon coming around, and his blast hadn't hurt the belly at all. Why would it? That must be its reentry shield! But he kept rising, and veered and rose again, playing his fire against the upper surface.

The blaster was searing his hand through the glove-waste heat-but he'd

melted a hole. He held his fire on it.

Something puffed fire from inside the ship. It lurched. Its heat cannon was coming around, and Svetz veered hard. Plasma washed past him once and again. This ship had two cannons!

With a flight stick, the only way to dive was to turn off the lift and let feeble Mars gravity have its way. He had lateral thrust, but if he wanted to change his path quick, the only way to go was up.

Svetz went up.

More fire was coming down at him from four heat cannons on the crater's vast rim. The astronomers had gotten organized. But only the big wok ship was in flight. He had cut them a new

rocket nozzle, and that was blowing flame.

He was rising fast now, spiraling to avoid the mounted heat cannon. He was above them now. He saw no point in attacking fixed installations or astronomers in general.

The big ship ripped through a line of mirrors.

Svetz kept rising.

“Zeera? Miya?”

He should have them in line of sight now. He'd risen into near vacuum. His suit was tight around him and he'd tightened the belly band so he could breathe. The planet's wimpy gravity was pulling him down toward what seemed a fuzzy white dot from this height. He'd

placed it in relation to the octopoid's skullcap, "Svete calling--"

They both cut in at once. "Hanny!" "Svetz!"

"Are you all right? Are you together?"

Miya laughed. "Yes and no--"

Zeera: "I'm down. I saw the sailcar too late to do anything about it. I set down in shadow, over against the south edge of the canal."

'Tell Miya where you are!'

Miya: "It's all right, Hanny, I have the Minim in sight. The wind's died on me, but sailing is still faster than running. Ten minutes. How are you doing?"

Svetz said, "I went up to the Observatory and shot down everything that flies. Now I'll take out whatever's

around the Tanker.” He was giving it way more confidence than he felt.

Zeera said, “You won?”

“So far. There's still the Tanker. Now, if you'll work up a ballistic course to the Lander-”

“Already done, Svetz! I'm just waiting for Miya!”

Miya cried, “Hanny. Hanny, I can see two flying woks coming from the east!”

“Oh, futz\ East?”

“Everything that flies, eh?” Zeera.

“Futz. I should have... it wouldn't have made a difference. Miya, how close are they?”

“Just two dots if I don't zoom. I only just sighted them. They're not very close, and I don't know how fast they are.”

Svetz mulled it through. He'd shot down the little escort ship. The big cargo craft must have told the Observatory: Our escort was shot down by an unseen enemy somewhere along the old canal. They'd sent two ships to search for the bandit, and here they were coming back.

A blurred dot had become an asterisk: the landing pad above the Lander.

“Miya, I'd say they flew right past your old sailing craft without finding it interesting.” Which meant... “Zeera, if the wok ships get too close, take off. Take off without Miya. Miya, they'll have to follow Zeera. They don't know what she'll do. they don't know what she can do, and some hysterical Softfinger

astronomer is telling them about me right now. Zeera, I'll clean out the area around the Lander before you get here."

Miya said, "Hanny, the big cargo ship--"

"I shot it down. There was a wok ship overlooking the Minim and I blew that up too. I couldn't find any others. Just gun emplacements."

He was decelerating hard. The asterisk came up. Big flat area. Why hadn't the Lander come down here six years ago? He saw the answer in fused rock. Astronomers found the Lander, then used those heat cannon to melt a bigger landing field above it A cannon swiveled to look at him. He blasted it, then the other, then played his flame over

the big beehive storage shed.

The explosion was actinic white, less like dynamite than lightning. He hugged the flight stick. The shock sent him spinning. He got straightened out before he hit anything, and watched a fireball rise where the storage shed had been.

So much for stealth.

Then again ... Svetz lifted and coasted around and down with not much to hide him. There might be no more defenses. He dropped below the level of the Lander, around and up.

He was looking into man-built prefab houses. Twenty... more like thirty octopoids were in view, most of them in motion. A few were struggling into pressure armor that had arms like a

drain-cleaning device and a centered transparent dome like Svetz's own bubble helmet.

Nobody saw him. Every Softfinger was looking up at the landing field and its dissipating cloud.

Svetz felled two dozen octopoids with his sonic, dropped and swung 'round the slope and came up again nearby. More houses. Had anyone heard anything? How would he tell? They weren't agile, these octopoids: they didn't run about screaming incoherently. They did have eyes beneath the skullcap shell.

He circled, pouring silent sleep on the Softfingers, then floated into a slm-1 between two rows of houses. Several octopoids saw him and pointed before

they slumped. One must have reached a phone.

He dipped between two houses and plasma flame lashed out behind him.

He hadn't seen where it came from. He was reluctant to make himself a target, but he didn't see a choice.

He popped up just above the roofs. There were only two beehive buildings down here, and Svetz fired on the one in view. Dropped back and scooted. The return blast almost fried him, but he saw a general direction.

Not from the octopoid-built beehives. From one of the houses.

Svetz ran down the line of houses, firing. Another blast placed the right house. He flew toward it, lifting, firing.

The house melted out from around the gun. The gunner must have melted too, or fled.

He could see octopoids fleeing downhill like so many wheels with no rims, skidding and catching themselves, their low center of gravity compensating for their clumsiness. He let them go. But he took the time to blast every dwelling. No hidden thing would emerge later.

He floated high. There were no octopoids in sight. Was there anything he'd missed? Oops. "Zeera?"

"Coming down, Svetz. Two minutes."

"I don't think they left you a landing spot."

"Blast me one!"

He opened up with the blaster again.

The half-cremated beehive he'd taken for a lab blazed again and slumped further. Ash remained, and something solid and massive, one of the Lander's rocket nozzles. He poured fire onto it at close range. It slumped and was gone ... and something hot and bright was coming down at him.

He zipped away from under the falling Minim. It settled gently in the ash pit, not far from the Lander.

Chapter 26.

Where's Miya?"

Zeera descended from the Minim in a long jump. "I left her a flight stick."

Miya spoke in his helmet. "I'm on my way. Altitude twenty klicks. I have you in sight. I've lost one of the wok ships.

The other's following me, but it's slow, hasn't caught up yet. Shall I try to lead it to the Observatory?"

Zeera ordered, "Stay and protect the Tanker."

Softfinger astronomers had
dismounted two of the motors, one to disassemble, one to test fire. They'd disjointed a landing leg. The Tanker sat tilted, too low and wide to fall over. They'd ripped off a sheet of the superconducting reentry shroud. They'd opened every hatch cover. They'd pulled hoses out in long coils, and spilled methane and liquid oxygen (Svetz could see where puddles had turned martian dust to patches of dried mud) and let the compressors replace it (the readouts

read FULL.) Then they'd tied off the hoses and cut off the nozzles and taken them somewhere.

“Could be worse. We'll have to make nozzles,” Zeera said.

Svetz held a severed tube in each hand. He felt somewhat emasculated. “What's it take?”

“Not much. Anything watertight. We'll use the spare pressure suit. That and some stickstrips.”

“Here comes the wok ship,” Miya reported.

Zeera said, “We're busy. Can you hold?”

Miya said, “I'll get above them and hit them before they get here.”

“I'll send Svetz up when I can.”

He helped Zeera lift the methane hose into place and wrap the join. It sprayed fluid, but most of it was going in. Svetz took to the air.

Eastward was a flying silver button. He saw something fluttering around it. He said, "Miya, don't bother shooting at the underside. That's a reentry shield."

"Thanks," Miya said. A tiny shape darted and flickered around the wok ship... and he dared not watch. Where was the other ship? If Miya was patrolling high, he'd go low.

The Minim and lender made good targets. They'd shed Soft-finger heat rays without harm, but spilled fuel would burn.

Zeera's voice: "Svetz, give me some

help. I need to change hoses.”

“Miya can't fight two ships, Zeera.”

“I'm disconnecting the fuel. Why isn't the other ship in your face right now?”

“Don't know.” They split up, he thought. One ship to track and kill Miya. She's riding a flight stick; they must think she's me. The other ship went to the Observatory to protect what's left.

He could help Miya now. They'd kill that first one quick, then double-team the second. But if he was wrong?

He hovered low above the Tanker and Minim.

Fire speared down, its origin too high to see. Above and about the Minim, a thin mix of fuel and martian air puffed and tried to catch.

Svetz lifted. He'd been lucky. Miya couldn't hold off two! But the second ship had spotted him instead. While the other's heat cannon recharged, he could act. Here it was, lower than he'd guessed.

Svetz fired up at its belly, just to make the Softfingers wary, and drew nearer. The aperture came around. He swerved, fired, swerved out of the fringe of their return blast and fired again. The wok ship couldn't turn fast enough. He played his blaster on its upper surface and saw a runnel form, and then the wok ship was rising, trying to disappear in the sky. Svetz followed, up, up, above the wok ship and holding the trigger down hard, but his blaster was dead.

"I'm unarmed," he reported. "I can

buzz around them until you get here, Miya.”

Zeera shouted, “Get down here and help me pump oxygen!”

Miya said, “My target's falling. Zeera, take cover. It'll hit near you. Hanny, I can't see your target yet.”

“I'll get them to shoot.”

The second ship would fire on him no matter what he did! He dropped wide of the Ixinder on a wiggly path. Make them choose their target. The thing he must not do was hover.

Flame seared past him. He cursed reflexively.

“I see it! Hanny, go help Zeera.”

He set down next to the Minim. There was no problem matching the severed

oxygen hose to its intake, then wrapping it with the spare suit and then with stickstripping. It only took four hands. They started the pump and watched oxygen boil out around the join.

Svetz asked, “Was the leak this bad...?”

“Don't worry. We were supposed to have extra for exploring.”

They watched the sky.

A bright star appeared, and drifted down.

They both began shouting at once, and Miya had to bellow into her suit mike. “Got them! Futz, they nearly fried me! You hurt them, Hanny, I only finished it. I'm coming down. How are you doing?”

“Near done,” Zeera said.

The voice from the sky said, “Feed me!” An instant later Miya dropped beside them.

They had to get out of the pressure suits. Then Zeera laughed and waved a hand in front of her nose, and the Minim's air system howled. It was futile to think about baths.

Miya's mouth was full, and Zeera was trying to tell her about Svetz's suggestion. “It's so easy! We just turn on the Fast Forward and wait!”

Miya swallowed deliberately. “You're for this, Hanny?” “I'm not for it. I just haven't thought of anything better.” “We'd be aborting the mission. We only have seeds for the anchor grove.”

Zeera exclaimed, “It's something to

show Ra Chen and Willy!” “We don't have what it takes to grow an orbital tower. That is what we came for!”

Svetz asked Zeera, “Think that tank is full?”

She glanced at her board and nodded. They went outside, pulled the oxygen hose loose and sealed up the Minim, all in silence.

“Ready to launch,” Zeera said, “if we can figure out where to go.”

Svetz said, “We have options. Go back to Hangtree Town. Stay and be natives. There are things we can teach them, if we find someone who wants to be taught. We might learn something too. How to grow a Hangtree.”

Miya's voice in their helmets: “You

favor this?”

“No. I'm just thrashing around.”

“Well, I've got a plan,” Miya said.

“Leader, speak to us!”

‘Trust me? Come in and button up the Minim. I'll show you.’

Chapter 27.

Dead of night. The stars were ablaze, seen through no trace of cloud and only the barest trace of atmosphere. The Hangtree had fallen below the horizon days ago.

“FFD,” said Miya. “On.”

Sunlight blasted their eyes.

Day and night strobed. Zeera cursed and clenched her eyelids tight. Miya looked out, grim and squinting. Svetz pulled his helmet into place.

Now the sun was a dark spot hurtling east to west, over and over, but the light-dark-light landscape was still uncomfortable. Pressure tents and vehicles appeared in a pattern not quite centered on the spot where the Minim moved through time, all built in the fashion of the red humanoids. The Tanker disappeared in sections. A few minutes later all the activity on the plateau went away. The temp housing began to decay and collapse.

Miya switched off on a day in late afternoon.

The Hangtree was high in the sky, east by south. Bouquets of tremendous silver flowers bloomed at both ends. The splintered bottom end had healed: it was

pointed like a stem emerging from a silver corsage, ten thousand clicks above Mars.

Miya asked, "How far did we come?"

"There's no gauge for the FFD," Zeera said. "Just an on-off switch."

"Futz! Give me a guess, then. Three years or so? The Martains must think we just disappeared. Now the tree's higher, but it took forever to get there. So the Hangtree is leaving Mars, but it's taking its sweet time-"

"Miya, what's your plan?" Zeera demanded.

"Launch."

"We can't reach Earth!"

"Rendezvous with the Hangtree. It's not in geosynchronous orbit anymore, it's

higher than that, but we can still reach the midpoint. The midpoint will still be in free fall.”

“We can do all that,” Zeera said carefully, “but why do we want to?”

“Launch us. I'll tell you on the way.”

“Are we in a hurry? Miya, what you need is sleep!”

“I want to get moving. Hanny, get into your suit. You too, Zeera. If I'm wrong I want to know it.”

“Midpoint of the tree, aye aye,” Zeera said. “Check my work.”

They were pilots, he wasn't. Svetz watched them, and presently said, “The telescopes in the crater may be up again. When they see us in flight, the party's over.”

Miya murmured, “Launches are finicky, Hanny.” > Zeera said, “I’ve got the Minim in low orbit. We circle half around the planet and do a second bum-”

Svetz reclined his chair and watched for double-wok ships in a navy blue sky.

He snapped out of a sound sleep when the floor roared at him and gravity doubled. The ship rolled. The biggest mountain in the solar system dwindled behind them.

The motors went quiet. Zeera said, “We’ll make another burn to close with the tree. Twenty-five minutes. Miya, are you planning to moor us to the trunk?”

“Right. I think I’ve worked out the Hangtree life cycle.” Miya closed her eyes and said, “We don’t have fuel to

reach Earth, right? | But we can get on the Hangtree and ride it. Anchor to the tree. We'll get there with a reserve of fuel. Then Fast Forward until we see where it's going. If I'm wrong, we abort. Reentry and Fast Forward, land at Mars Base One and call Willy. Start over.”

Mars was a vast black curve beneath black sky. Fuzzy light was just peeping over the horizon: not the sun, but the Hangtree's upper cluster of mirrors.

Zeera started her second burn.

Svetz was able to make out a vertical line, almost invisible against the black sky, motionless and infinitely distant. It didn't look threatening.

“What's that?” he asked, and it was suddenly far too close. Zeera yelled and

fired attitude jets. The Minim twisted viciously and surged.

The intruder whipped past. They craned around to see it recede: a silver-brown cable hanging unsupported in space, there for an instant more, then gone.

Miya said quietly, "The Hangtree's dropped a sapling."

A juvenile Hangtree? "That's good, isn't it?"

"Might mean I'm not crazy."

Zeera said, "I'm correcting course now. That cost us some fuel."

The parent Hangtree rose; become large; vast; a world in its own right, coming up too fast as Zeera turned the Minim for a final burn. Thrust pulled

them into their seats, then eased. A vertical bar on the displays stretched, lit up in red, kept stretching, turned yellow.

Svetz asked, "What's that?"

"Hull temperature," Zeera said. She turned the Minim, and they looked into a hot pink glare.

"Heat rays. Futz 'em," Zeera muttered. "Did either of you see any kind of projections on the mid-trunk?"

"Sail struts," Svetz said. "Down the trunk by no more than twenty clicks. Sail material harvested, struts still in place." The glare of Softfinger heat rays washed out all detail, but he'd seen. "We can moor to those. Zeera, what about the heat cannon?"

"Can't hurt us, but projectiles can. I

need to moor us now.” Another puff of thrust sent them downward, still closing with the trunk.

The heat rays touched wood. Red fog boiled out of the bark and closed around the Minim before the Softfingers turned their weapons off. Svetz looked for double-wok shapes in the red murk. What he saw was a man-built dirigible airship moored below them, much too close.

A final tiny push and they were up against bark, in a ring of light-sail stumps. Miya was already in the airlock. Svetz followed her through, his flesh shrinking from unseen high-velocity bits of metal.

Slowly, carefully, Miya showed him

how to make knots that would come apart at a pull. They wound cables around the huge stumps, moored the Minim tight, then climbed back inside. The airlock held them both, intimately, as something like a rainstorm began: bullets ticking against the hull.

The sky lurched into motion. i The inner door opened. Miya moved briskly to her chair.

Svetz blocked the sun's flickering arc with his forearm. He watched stars whirling around him, the brighter twinkling of clustered light-sails, whirling Mars sinking away. A wooden structure built itself on one side of the Minim, and continued to flicker with motion.

“Studying us,” Svetz guessed. “They saw us disappear here. Zeera, could they detect us?”

“How would I know?”

Mars was a ruddy dot, not even a half-moon anymore. The sun was fixed, a glare among the mirrors at one end of the tree.

Svetz asked, “Miya, you had a plan. Are we still on track?”

“Me? Plan?” Miya laughed, then sobered. “All right. I’m trying to think like an orbital tower here, like a tree, Hanny. Where does a Hangtree want to go? It must have crossed interstellar space to get here. Why didn’t it go straight to Earth?”

“Low gravity, high spin. Mars, not

Earth.” She'd told him that.

“But Mars is mostly desert. Earth is mostly ocean. Why wouldn't a Hangtree want to zero in on the richest water-and-oxygen spectrum in the sky? Our problem is we got hung up on seeds,” Miya said. “A plant can bundle tiny bits of information into a million seeds. A Hangtree can't do anything that simple. Interstellar space is just too big to find anything by accident. Even a seed that got lucky wouldn't be anything more than a bit of meteor.

“It must have crossed space as a tether, already a hundred thousand clicks long and festooned with solar sails, all ready to move into place and take over a planet.” She looked at them. “Right?”

Svetz was reserving judgment.

'Ten thousand years on route, getting energy from starlight but using up its reserves of mass, getting more like a dried-out dead tree all the time. It leaves fat and arrives lean. Anything that migrates does that,' Miya said. 'It finds a world and takes up orbit, maneuvering with the sails. Drops seeds. An anchor grove grows. The Hangtree drops a root. The grove sends up water and soil nutrients. The Hangtree sends down sugar sap. They feed each other. They grow.'

'It picked Mars because Mars is easy. Earth makes a better garden, but two and a half times the gravity means a tree has to be longer and stronger. Now it's

strong enough. It was almost ready to tear loose from Mars. Then we got here and war came swarming up the tree. All that dead weight tore it loose, or maybe it was just ready.

“It's going to Earth.”

Chapter 28.

When it became clear that nothing was going to happen fast, Zeera and Miya went to sleep, leaving Svetz on watch.

The tree had made accommodation with the prevailing tide. Its down branch was pointed into the sun. Constellations streamed past, conveying a sense of progress, marking a year for every circuit. There was motion on the tree.

The dulled silver elevator track was being stressed, stretched, pulled apart.

Anchor points popped. Torn ends slithered away from each other, up and down the trunk. Then a wave of repair ran down the rail and left it intact and shining silver and flickering with traffic.

Mirrors at the tree's end points flickered endlessly. Bubble domes sprang up along the tree's up branch, then were replaced by more angular, more solid structures. Svetz could see their mutating silhouettes against the glare of mirrors at the up end.

Beehives formed along the down branch. Plumbing began to grow along the bark. Suddenly the pipes were shattered and most of the beehives became charred craters in the bark. It all began to grow again, like mushrooms.

Svetz tried to guess how many Martians, how many martian races, were still on the Hangtree. It seemed they'd built vertical cities, fought, then reached an accommodation.

The tree was maneuvering, going somewhere: the flicker of light-sails told him that. The Minim's instruments might have told him more if he'd learned to read them.

New light-sails were beginning to unfold on the old stumps around the Minim.

The elevator track wriggled restlessly, now crooked, now straightening. Torn again, repaired again... ?

Hours passed in the Minim. Svetz had

lost count of the years passing outside. Sixty? Seventy?

Light glinted from Miya's eyes. She was awake.

He spoke his fear, lightly. "We are going to Earth, aren't we?"

"I'm sure it's what the tree wants." Sleep made her voice gravelly.

"Maybe it's ready to cross to another star."

Miya wasn't looking at him. Her fingertips glided over her instrument display.

Svetz said, "We've been between planets for something near a century. Whatever Martians are still with us must have made their peace with the tree--"

"They're here if they want to be. Any

Martian would have had time to get back down to Mars.”

“What if they learn to steer the tree?”

“There's a nice thought.” Miya laughed. “They could take the tree to Europa. Let it pick up gigatons of water, bring it back to Mars, cut into the trunk and let sap bleed out. Fill up those canals! We'd end up at Europa with no fuel and nothing to eat. Pass me a dole brick, Hanny.”

He did that. Miya said, “Now, the FFD completely futzes up our inertial guidance, and the computer can't find our location because nobody thought to tell it about changes in the constellations. But I've graphed our insolation-that's the light that's been falling on us since we

left Mars. Here.” Tap. Svetz's display changed. Sure enough, that was a graph. “Curve looks choppy, doesn't it? Sunlight should be more steady. Maybe all the mirrors screw it up. But see for yourself, Hanny, we're getting twice the sunlight now. We're going in toward the sun, not out Anyway, the Earth-Moon system went past while you were talking, and here it comes again. See it?”

Svetz never could find anything that someone else had to point at. He said, “I'll take your word.”

“Are you awake?”

“I want some sleep, if you can take over.”

“Go ahead.”

Still asleep, or trying, he let both arms

drift up to block a blue-white strobe. It almost worked. A fitful glare lit up his eyelids anyway.

When he opened his eyes, the Minim was in a bouquet of rippling mirrors.

The mirrors shifted languidly. Edges parted and closed again. He caught partial views of glare-white clouds forming and swirling and dissolving frenetically on a whirling blue background. A black shadow swept across ...

Zeera saw that he was awake. “We haven't moved for a while. We thought you should be up when we turn off the FFD.”

“Should think so. Martians all around us.” Svete loosed himself from the- web.

He was groggy. Free fall made him clumsy. “Good call, Miya. Earth. Did the tree touch down yet?”

“Not yet. It's dropped seeds. Showers of seeds, a dozen times in a dozen places. I think it must be waiting to see which anchor trees come up. We've been here two years and a fraction. We're not in geosynchronous orbit; we're drifting.”

“Can we finally check in with the Institute?”

“The talker doesn't work in Fast Forward. We'll have to drop out.” Zeera's forefinger reached.

“Hold it!”

Miya spoke soothingly. “Hanny, we're fine. We programmed the Minim for reentry. Those light-sail stumps weren't

dead after all, so we're pretty well hidden from any Martians. We drop out, we use the talker to call present time-"

"Cut the Minim loose first! Miya, we can't see them. Take translators and blasters too. Are we all going out?"

Zeera laughed. 'Translators? In vacuum?"

"If you find yourself wound in a net in some Softfinger pressure dome, Zeera, you will be glad you have a translator."

"All right, Hanny. You and Miya do that I'll phone home."

Chapter 29.

The spinning Earth jarred to a stop. Svetz went out first into a forest of mirrors. Yes, it was fun to squeeze in next to Miya, but they'd be too confined

to fight!

He worked fast. Reality rippled bewilderingly, showing him an army of brilliant green bulb-headed lizards. Now came a forest of companions in a yellow pattern, and Miya was beside him, helping. Now came larger distorted shapes in silver-brown- Svetz whirled and lashed out. He couldn't remember snatching out the heavy blaster. Blaster handle and fist whacked hard into protruding glass goggles in a bronze mask as big as his whole chest, Glass shattered and sprayed.

A meter of sharp silver lashed out. Svetz ducked under the backhand stroke as a long-barreled weapon spat fire past him. Then both weapons were wheeling

through space while the intruder covered its face with both arms, trying to hold in the air. While Svetz gaped, a third appendage reached far out and closed like a vise around his leg.

If he'd seen the intruder first, he'd have frozen in terror. It was four meters long. It had six limbs like an insect, but no thorax or tail. And Miya was on its back, her fingers working to pull its upper arms loose.

Fog puffed out. The intruder went limp.

Svetz wriggled out of the loosening grip on his knee. He barked, "Zeera, did you cover all that? Do you see more of them?"

"Just the one, but futz!"

“I want to bring it in. Don't vent the air, pump it.” A live prisoner would be nice ... vacuum doesn't kill instantly... but a corpse would do, and they'd want that air.

Miya disengaged herself from the monster and pulled it around to look at it. She couldn't have seen much inside the hard-shelled suit. She wrestled the helmet off. “Come see these eyes,” she said.

Svetz shuddered.

Had he disappointed her? She said, “I used to envy you. The weird, wild creatures you've seen and touched. Come on, Hanny. Look at the way the eyes are placed, so it can see to both sides at once. It could almost be an herbivore-”

He let her pull him close.

The skin was yellow-green. The eyes were closed under lids that might have been cut from tennis balls. They were too far apart, vulnerable-looking at the edges of a squarish head. The Martian would see forward too. Hands opened and closed reflexively at Miya's touch. The middle pair were thick and clumsy, with a callused heel.

The Minim's great cargo door opened to the sky in a trace of icy fog. Svetz and Miya pulled the creature inside.

"Some erg counter has me on hold," Zeera said. "Shall I close up and pressurize?"

"Right," said Miya.

They pulled a cargo net over the alien.

The Minim had just become a lot smaller. Zeera said, "I wish we could bag that. When it starts to rot--"

Miya said, "We can look it over first."

Svetz didn't want to be involved in that. "I'll finish up out there. I want us loose," he told Miya. "No, wait." He fished his blaster out and put it back on the wall. "If we'd fired these deathtraps in that house of mirrors, we'd be nothing but ash!"

"Oh, futz! But, Hanny, what if there are more?"

"It's a risk."

Svetz took his time, methodically pulling tethers loose and coiling them and stowing them under hatches on the

hull.

Any creature this big had to be something of a loner, just to find enough to eat! If a squad of green giants had found the Minim, they would hardly let Svetz smash their man's visor and kidnap him, would they? They couldn't be that different.

If these lines got tangled, the Minim couldn't reenter.

But, methodically pulling cables loose and stowing them, he kept spinning around to look for intruders.

Miya's radio voice said, "It's not breathing. How are you doing?"

"Near finished."

"I've got its suit off. There's flexible tubing down the insides of the suit. It's

got a backpack too.”

The Minim was free.

“There aren't any fingernails or toenails. Its ancestors may have had an exoskeleton, but there are only a few plates left, like it was born wearing armor. The tusks are bone, and there are bones and joints in the limbs ... no ribs ... still, a well-developed endoskeleton. That middle pair is legs and arms both. I can almost see how the shoulders rotate. Mph?”

“What?”

“Oh, now I see. Hanny, you're going to love this.”

“I'm coming in.”

Miya's arms wore around the green giant, compressing its torso, releasing.

“It still isn't breathing.”

Too much to hope for, wasn't it, that an alien captive would be built like Earth's life-forms? Still-”Insects don't have lungs. Check for openings along its sides.”

“That's what I meant, but spiracles still have to be pumped!”

Zeera shouted, “Futz it, will you both strap in? I might have to launch-”

The cheery voice of Willy Gorky barked, “Zeera! How's it going?”

Zeera's arms waved frantically, summoning Miya and Svetz to their seats. “That's a long story, Willy, but we've got everything you wanted.”

The voice from the other end of time said, “Great!”

They took turns talking. “We saw at least five kinds of tool user. I'm pretty sure they weren't all intelligent.”

“Miya's collected some seeds-”

“-big, heavy golden spheroids with a texture like foamed ceramic for a reentry shell. But those only make the anchor trees, Willy-”

“-we think.”

Descriptions of the last leg of the flight had to come from the women, while Svetz's eyes peered between the mirror blossoms, up and down the trunk.

“The tree still has some drift to it,” Miya said. “It's been dropping seeds. It prefers targets on the equator-”

“Strips of seeds fifty klicks long, generally crossing a shoreline.”

“You'll remember that the grove on Mars was partly on a canal.”

“Boss, we don't exactly know what to do now. The tree won't bud a sapling until it's ready to move on. If it locks to Earth and we leave it in place, will it still be here in present time?”

That was a serious question. Ra Chen and Gorky held rapid discussion with techs and time travelers, irritatingly half audible. Willy Gorky said, “We certainly want to watch the tree link up.”

“That could take years,” Svetz said.

“Not for us.”

“Willy!”

There was whispering at the other end of time. Then Willy Gorky said, “You've got the FFD, Zeera. Use it. And the

Secretary-General wants to see some Martians. Have they made any attempt to contact you?"

"Yes and no-"

"We had a prisoner, sir, but we th-"

"It moved," Svetz said.

Miya loosed herself and went to look.

Without the pressure suit it still looked armored. Dark green back, pale yellow face and belly. Jeweled ornaments were riveted to exoskeletal plates, and holsters for tools including tube weapons and knives. Nasty little spines of polished metal jutted from its mid-limb wrists. There were rows of holes along its flanks.

Thick eyelids suddenly rolled open. Bulging eyes wobbled independently as

they scanned the Minim, making Svetz's own eyes hurt, then both centered on Miya.

The hull rattled. Svetz turned to see shapes like spindly frog8 bounding among the mirrors. Tubes in their hands spat fire. He saw three six-limbed giants wrestling a much bigger tube into place. It poked out through the silver petals, looking straight at him, and he yelled, "Launch! Launch now!" Turned to scream, "Miya-"

Tether yourself! died on his lips. Miya had been distracted. Six limbs wrapped themselves around her and pulled her close. Her fists and heels pounded against the creature's shell.

"Launching now," Zeera said.

The intruder sighed and sagged limp under nearly Earth's gravity of thrust. Miya rolled clear.

Dead aft, the big tube was looking right at the Minim.

“We have a live prisoner.” Zeera spoke crisply above the rocket's muted scream.

“Great!” said Willy Gorky. “But you launched? To Earth? Of course to Earth, sorry, I'm still catching up, but Zeera, we want those Martians! The SecGen-”

“They were firing on us!”

The burn ended. The big tube spat orange flame. Attitude jets puffed as the Minim slewed sideways: automatics avoiding a meteor. Something massive tacked the hull anyway.

The mid-trunk dwindled. It was still huge, a world in itself. Was it more slender than it had been at Mars? Earth's Hangtree must be longer because geosynchronous orbit was higher. Of course it must have grown longer year after year, and more slender too, and that was why the rails had ripped!

Miya still wasn't in her command chair. Svetz looked back. Miya was moored to the wall by sleeping tethers, just beyond the monster's reach. She was talking, the monster was talking, and the translator was talking too.

Svetz always hated learning a new language.

He said, "Willy, the only Martians / talked to did all their talking after I was

a helpless prisoner. Maybe we've done exactly the right thing.”

From the other end of time Gorky said, “Ah ... maybe. Where are you coming down?”

Zeera said, “South America, northern edge of what became Brazil, right on the equator and just at the shoreline. It's where the anchor trees seem to be having the most success.”

“Good luck.”

“Wait! Sir, how do you expect to get us back?”

Willy Gorky said, “We'll send the small X-cage for you. Call us when you get down and give us decent coordinates.”

“How?” Zeera cried. The inertial

calendars on the X-cages weren't that accurate, the Minim didn't have one, and Willy Gorky didn't see the problem at all.

Ra Chen broke in. "You gave us your location in space. Brazil, equator, shoreline. Get there on foot if you have to, but get us a date. Ask a local."

Gorky: "Would a primitive have a dating system?"

Ra Chen: "Mayans and Incas did, but... hmm... we couldn't read them. Zeera, what you really want is a Spanish invader. Look for metal armor. Get Christian dates."

"We'll try that"

Chapter 30.

On the night side of Earth was no

trace of city light. The planet was black. Nearly uninhabited. Population ... a few millions? And now they must search among savage locals for a savage Spaniard halfway round the world from Spain. For a Spanish conquistador, as likely as any Martian to kill a stranger on sight.

But that problem might never arise. "Zeera, these motors wouldn't even lift us. They weren't built to land on Earth."

'Yes, Svetz, they were. Minims launch from Earth and refuel in orbit. This one was rebuilt for Mars, heavier, with an expanded cabin, but it's pretty much the same. Most of the volume is tanks. We fall motors-down. What's under us is a fuel tank that's supposed to collapse if

we hit too hard. It takes the shock. We don't."

'You've been thinking about this too.'

"Oh, yes. And about that impact weapon that might have torn up our reentry shielding."

From aft Miya called, "I've been telling Thaxir about Mars. About what's going to happen. She wants to talk to us."

Thaxir? She? Us?

"I was born on the tree," the green giant said. "I know only what my mother told me of those days when the tree broke loose. We were royalty, and I am a princess in Memnonia. My age is near thirteen, I think. We have clocks to keep the time our ancestors kept by sun and

dark.”

Really, Thaxir's speech was as interesting as what the translator was saying. Her mouth wasn't insectile, but the mouth and lips of a mammal, though tusks as long as Svetz's forearm would make her speech mushy even if it were shaped by lungs.

But Thaxir breathed through spiracles. Svetz saw what Miya was trying to tell him: tubes ran down the inside of her pressure suit to feed two rows of holes along her sides. She spoke in a prolonged belch, and swallowed air to keep it going.

The translator said, “Our nature is conquest, but the tree is too fragile for war. The Allied Peoples have not made

war in thirty years. We live with the Hangtree and the Hangtree is our life. I have tried to learn why we should want to leave. Miya cannot tell me.”

“I told her about Mars,” Miya said to Svetz.

“The world was to dry and die. My parents knew the prophecy,” said Thaxir. “When the Hangtree broke loose, they could have gone home to their children and grandchildren. They chose the tree.”

‘To their.... ?’

Miya told Svetz, “They live a long time.”

Her parents already had grandchildren forty years ago, Mars time: seventy-five Earth years. “And you're under

thirteen?” Twenty-four and a half in Earth years, among beings who might reach a thousand.

“Futz, Miya, we've kidnapped a little girl.”

“You have made me slave, and I remain slave,” Thaxir said with composure, “until my warriors can rescue me. But my heart is with the tree.”

“The tree's intent may not be the same as yours,” Miya told the Martian. “The Hangtree crosses between stars. It only stops at worlds to take nourishment, to make itself strong for the crossing.”

The green giant's lips pulled back from her tusks: a terrifying sight. “Another star! Yes, we hoped.”

“You won't have a sun for thousands of years. Understand? The bark of the tree, you know how thick it is. It's insulation! The core of the tree won't freeze, only the outside. Only you and your people.”

Thaxir snorted. “We survive! Vacuum sucks air and water from our bodies, but we build pressure tents and then walls. Other kinds attack us for our position on the tree. We fight them until they must make peace. The tree stretches and tears our rails, locks each group of us away from what we need elsewhere, but we build again. If the sun is distant, we will use solar mirrors to gather the light. Have we survived vacuum and starvation and war to be stopped by

cold?”

Miya considered. She asked, “You don't live together, all of your species, do you?”

“No. Mother says we are distributed by what we can defend. There was more of lighting for turf before the Hangtree settled in above this cloudy world. My father died in the war. Now-”Thaxir stopped talking.

Miya asked, “Secrets?”

“I cannot tell you how we defend ourselves! You may not demand. There are laws for treatment of slaves!”

“We're going down to Earth. Our vessel won't lift again. We have no way at all to attack any part of the Hangtree.”

Thaxir thought that over. “No way to

return me? Even for high ransom?"

"If we find a way, we'll return you. You can carry our message. Some of you must want to leave the tree before it freezes you."

A stubborn silence ... though Thaxir's face was hard to read. Where her nose would have been was a flat plate with a stylized pictograph carved into it.

Miya asked, "What do you eat?"

"The tree bears bountiful life. There is fungus. We make a paste from the starchy roots of a parasitic plant. There are animal forms big enough to feed an army for a week." She wriggled. "If I may reach my pack?"

Miya reached through the net to release the little pack on the green

giant's back and moved it around to her arms. Thaxir pulled out a flask, then a big shapeless lump of something wrapped in mirror leaf, then a beautiful golden arch set with gems, the frame for a score of taut parallel strings.

Svetz asked, "Musical instrument?"

"Yes, a windstorm-minor. Listen." Thaxir played a tune of strange intervals, all sharps and flats. It seemed to Svetz that she was trying to duplicate some pattern already known ... like a computer ... yet there was charm in the moment's uniqueness.

Miya spoke, unaware that she interrupted. "A crossing between stars would take thousands of years. There won't be sunlight. No source of energy

for anything that lives on the bark. It will all die, and so will all of you, and even if you could survive, you, Thaxir, would never live to see another star.”

The pack had disgorged a slate and stick, and Thaxir was drawing. She said, “After all, what choice have we?”

“Some of you who want to accept our offer could gather at the tree midpoint, where there is no gravity. We'll send you the large extension cage. We'd like some from each of the Allied Peoples if possible. The large cage would hold-Hanny?”

Svetz thought it over. Going forward in time, gravity would plate them across the interior of the shell. “You could lay them out around the whole inner surface.

Twenty of these green giants, or a hundred Softfingers or eighty red humanoids... I never saw the crab things close up.”

Miya asked, “There are more of you than that, aren't there?”

“Of the species from the south, the Fishers and High Folk stayed to share the planet's fate. Only the Smiths chose to ride the Tree. Five kinds. A million warriors.”

It didn't matter if Thaxir was inflating the numbers. Miya said, “So we can't take you all. Think, now. If some of you stay and some go with us, it's much more likely you won't all die.”

“You argue as a gambler?” Thaxir was amused.

“Probabilities.”

“It may be some mathematicians will go with you.”

“Do your people live at the Hangtree's midpoint?”

“Softfingers hold that region. They're all arms, you know. Freely falling, they are more dexterous than we. We”—the translator hiccuped, then—“green giants, we hold the tree from its far end to forty thousand klicks inward. There we have nearly the same weight as on Mars. It's the best part of the tree.”

The translator helped them get their measurements straightened out. Reds held a stretch along the inner branch, from 18,000 to 23,000 klicks altitude. That was roughly martian gravity: they

could fight species that were less strong but more dexterous. Thaxir was not reluctant to describe the locations of rival species, but she avoided any mention of their defenses.

What was she doing in Softfinger turf? “We repay a debt. Eleven of us lend our muscle to help the Softfingers extend their city. Other species are involved too. I thought to use the sunflower stalks as anchor points for some preliminary construction. And there you were. And you”-looking at Svetz-”you smashed my face before I could so much as scream.”

“I was frightened,” Svetz said.

“Is there such a thing as a mirror in this place?”

Miya said, “No. Thaxir, your face is

fine. The carvings, they aren't touched.”

“What is that whistling?”

“Earth's air, slowing us. Don't be frightened.” Miya plucked the netting around the green giant. It was taut. She pushed the windstorm-minor under it. “You'll be fine. Hanny, we should strap down.”

She and Svetz made their way forward. The sun was a sudden flame ahead of them, bisected by a flat black horizon. The sound of a harp joined the thin wailing. Air screamed around heat shielding intended for Mars, not Earth, and Thaxir was playing a weird and lovely counterpoint.

Through the flame colors Svetz couldn't tell what was below them. He

wouldn't have known the geography anyway. The hull's scream had a warble in it now, and Zeera, who knew this ship better than Svetz, wasn't looking happy at all.

Wisps of cirrus went past. Svetz could make himself believe they were slowing. His weight was easing. The Minim was falling almost vertically, and what was below was hard to make out, but... “Zeera?”

“Let the computer handle it, Svetz. Look, those trees off there must be the anchor grove. Ten, fifteen clicks away. We came pretty close.”

“That's water, isn't it?”

Miya said, “Cosmonauts always fire too early. It costs fuel. We learned to

just let the program handle it.”

The motors fired. The Minim tilted hard over. Ocean below, shoreline where the nose pointed, and slender trees tipped with black.

There wasn't enough thrust. They'd known that, and now the motors were firing horizontally, not slowing their fall.

The Minim tilted to vertical, then a bit farther. Svetz heard the hull rattle and hoped it was landing legs deploying.

The ground came up much too fast. I
Chapter 31.

Baba Yaga or Baba Jaga. A female supernatural of Russian folklore... a cannibalistic ogress.... Her abode is a little hut constantly spinning around on fowls' legs in a clearing in the distant

forest; this is surrounded by a picket fence topped with skulls. The Baba Yaga rides through the air in an iron kettle stirring up tempests, or in a mortar which she moves by a pestle as she sweeps her traces from the air with a broom ...

-Funk & Wagnall's Standard Dictionary of Folklore, Mythology and Legend Svetz cautiously tested his neck-not broken-and his back, before he looked around. "Is everyone alive?"

"Fine," Miya said dubiously.

Zeera said, "Svetz, it wasn't that bad a landing, considering we came down on two legs!"

Svetz asked, "Didn't that used to be there?"

The intertemporal speaking device, torn from its mounting, lay next to the Martian's head. They scrambled down to look.

The green giant lay as if dead, but air was going in and out of her spiracles. The talker had missed her head. It looked partly crushed. There was nothing to try: it only had one switch.

“Futz! The talker's dead. Look at it! We're cut off.”

Svetz pulled a filter helmet over his head and went out.

He came back in much faster, pulling it off, gasping, “Zeera! Have we got filter helmets for Earth atmosphere?”

‘Tes, Svetz. Ra Chen won't let us go into the past without them.

He made sure the drawers are labeled, see, so if you can read the ITR logo-”

“Thank you, Zeera. We all get one. Miya, you can't breathe what's out there-”

“You told me, Hanny.” She was cautiously prodding Thaxir. “Nothing broken, I think, unless it's under one of these plates. Gravity's going to bother her, and I can't guess what she eats.”

The outer door was now a horizontal platform. The sand was twelve meters down. There should have been a ladder. There was only a pulley system, not yet deployed.

Svetz and Miya rose on flight sticks and circled the Minim.

It was hot! And humid! They were wearing loose ship's clothing cinched at wrists and ankles. In seconds they were soaked through.

Two of the Minim's legs were still retracted. The remaining pair had plunged through a meter of water, deep into sand. If the Minim hadn't come down hard, it would have toppled over. The tide had withdrawn now.

The Minim stood upright on two slender legs. The burned gouge along its flank ran almost through into the oxygen tank.

“Company,” Zeera said softly.

“I don't see-”

“In the trees onshore. Use infrared.”

Trees as slender as wands stood just

offshore, growing out of the sea, tufted with black: the anchor grove. A forest of tangled greenery and shadows grew densely inland: the opposing life of Earth. Svetz turned a pair of mag specs on those.

Mag specs were almost as good as a pressure suit's fishbowl. By infrared Svetz picked out hot spots five feet tall. Now he could zoom them in normal light: a dozen or more short dark people standing perfectly still within the shade of the Earthly forest. Men and women both, though they looked so odd-poor diet?-that Svetz identified the women only by their breasts.

Zeera said, "I'd say they don't want to talk." ("Fine by me," Svetz said.

“Let's talk about our orders,” Miya said. “The talker's dead.

That makes it moot whether we need a Spaniard to tell us what time it is. Do we still want to watch the Hangtree link up?”

East of them the Hangtree hung above the ocean, almost fading into the blue sky. Hard to judge how far away it was, but at least several hundred clicks, several degrees of the Earth's circumference. The bottom faded into horizon haze.

Svetz said, “Maybe it is linked up.”

Miya gave him a look of disgust “The Fast Forward,” Zeera's radio voice reported, “is futzed.”

“That too? How bad?”

'Ten centimeters of superconducting wire would fix what I can see. I just can't seem to find it. I'm looking where it should have been packed.'

Svetz knew better than to try to help Zeera find something, and she'd packed the Minim. He said, "Miya, let's look around."

"What's the point?" Then Miya said, "Yes, Hanny. We're in no real hurry, are we, Zeera?"

Zeera sounded distracted. "Not until I find-well, and food! Sooner or later we'll need a way to feed ourselves. Hold up... we've got dole bricks for a long time, two months anyway. No, no hurry."

They went back in and came out

wearing only shorts. Shoes would have had to come off the pressure suits: big bulky things they both rejected.

They flew among anchor trees no thicker than Miya's waist but scores of meters tall. The tip of the tallest was a black puffball five or six meters through. Miya hovered close up against it. "Notice anything interesting, Hanny?"

"No. It's fluffy, like black cotton."

"Cotton?"

She was drifting down the slender length of the anchor tree, and Svetz followed. He said, "It's a plant. People used to wear it."

"So we're looking around where we don't even know what the questions are. You need curiosity to solve puzzles, you

told me that, and there are always puzzles to solve, because all of your missions go wrong, right, Hanny?"

The water was wonderfully clear. The slender trunks went straight down through the water and into the sand. Any roots must have begun spreading out far beneath the sand, reaching into bedrock, forming a network to anchor what would presently attach itself: a mass greater than any mountain, pulling up.

Svetz said a bit defensively, "We accomplished the mission this time, didn't we? But landing a Mars Minim on Earth wasn't part of any plan / helped make."

Miya let him see her turn off the radio link to the Minim. "That black cotton

looked very soft and cushiony. Would you like to make love in a tree from the stars?"

"Well, futz. I didn't plan that either."

They drifted back up. They'd be hidden from the Minim ... but a fall from this height would kill them. Svetz suggested, "Let's moor some lines."

Miya swam into the foliage; Svetz stayed aloft. He'd catch her if...

"There's branches all through this. I can anchor us. Come on in."

The puffball material had some of the hampering effect of a martian "bed," but not as bad. It cradled them, held them together. Cuddling afterward, they lifted their filter helmets to kiss, and Miya tasted Earth's air.

She was instantly in love with it. Svetz had to pull her filter helmet into place when she started to pass out.

Then, still tethered, Miya crawled down through the tuft to look through the underside. Svetz wasn't going to bother, but he heard Miya's radio whisper. "Come see this!"

Svetz swam through the foliage and stuck his head out of the bottom.

A man was on the beach, looking up at them. He was pale-skinned and dirty, shelled like a Green Martian, but in rusted metal.

Miya said, "We've found Ra Chen's conquistador."

Chapter 32.

They didn't want to be seen flying.

They locked their flight sticks, then dropped them to the ground and slid down the smooth trunk. They planted the flight sticks in a conspicuous green bush, the brush discharges sticking up like strange golden blossoms. "Hold it, Hanny."

"What?"

"When the sun's right behind you there's a ring of light around your head. It's the filter helmet. We don't want the sun behind us when we approach a local."

The shelled man was no taller than Svetz or Miya. He looked pale and ill. He wore weapons, but he didn't try to reach them. Tilted against a supporting tree, he watched them descend as if they

might be hallucinations.

Then he drew himself up before them in yoga tree position and said, “Yo soy John de Castores del Camoes...” and continued at some length.

“I am Jack,” said the translator.

In Earth gravity Jack wore armor around his torso and carried heavy baggage too. No wonder he seemed bowed beneath the weight. He looked amazingly dirty. His beard and hair were scraggly and matted and overgrown. He carried his helmet, and Svetz wondered if his overgrown hair would still fit into it.

The United Nations translator recognized the language: not Spanish, but Portuguese. It had that in storage. It

learned the archaic forms much faster than it had learned martian speech.

Jack wanted food. He was here to fish, he explained. Beneath these very strange trees-?

Svetz said, "Orbital tether," and heard the silence: the translator didn't have that term yet. "Hangtree roots. Beanstalk?"

The translator spoke. Jack thought that over, then said politely, "Beneath these beanstalk roots the fish and shellfish thrive. But Dinis and I, we are sick of fish!"

Miya offered him a dole yeast bar. Jack bit into it and looked dubious. Then he offered them a dark strip of... something.

Svetz took it because he couldn't

guess how Miya would react. He lifted his filter helmet and caught a wave of smells. Some of that must be coming from Jack. He put the dark strip in his mouth. It was hard enough to break teeth.

Saliva softened it, and then it tasted like ... strange, like ... ancient messages crawling up from his primitive brain. Corruption, and meat, and fire.

“Jerked meat,” the translator called it, “with these you locals call chills for flavor.”

“Meat. From a beast?”

“From some local creature I do not know, which Dinis shot. But the animals become wary and our bullets run low. Sir, my companion Dinis is hurt. Do you know local herbs to help him?”

Before they could admit to knowing nothing of the locality- which Svetz had already decided not to do-Jack had spilled his pack on the sand.

Blanket. Knives. A bottle and a small bag, both made of something like Naugahyde. Gear for mending a boot. An ornate religious thing, cross-shaped. Jack showed them leaves and roots wrapped in cloth, half a dozen varieties. This root they had cooked and eaten and liked. This helped constipation. These leaves they had spread on Dinis' wound; it hadn't done much good- "And your do 'yeesbar. God ordains that true medicine must have an evil taste, and truly I feel better. Where does it grow?"

"In another country." Svetz handed

Jack another bar, for he'd finished the first. "We must hoard them," he said.

Miya picked up a small, heavy bag. "What's this?"

Jack took it quickly. "Silver coins. All I have. Would that they were gold. We hoped to find gold in this place, but-" He shrugged. "Will you come and look at my sick friend Dinis?"

Jack told his tale as he led them through the jungle.

The shipwreck had left twelve. Attacks by primitives out of jungle shadows, snakes bigger than a madman's nightmares, fever, starvation, rumors of gold, greed and madness among their officers, had winnowed them down to two.

The jungle had nearly strangled a small stepped pyramid built of huge stone blocks. Jack led them nearly to the top and through a great doorway.

The room wasn't large. Amid a junkyard of primitive tools and elegant stoneware, Dinis lay on a dais beside rusted armor. Dinis looked much like Jack; they even dressed alike. All the same, Dinis had been dead for hours.

Jack asked hopefully, "Is it possible ... ?"

Did he really expect dole yeast to restore a man to life? Svetz didn't laugh. He said, "We cannot help this man."

"Were we fools to lodge in this alien temple? Ah, Dinis! But we had not strength to build shelter."

Svetz said, "Jack, our mission leader tells us that nobody is ever truly dead."

Go back and talk to them, Zeera would have added- Jack seemed to relax. "You are Christian!" he marveled. "And Svetz is your name? Russian?"

Svetz let that stand. "Jack, what is the year?"

"We left Portugal in the year of our Lord fifteen sixty. Since then I too have lost count. Two years, I think. In this place one cannot even guess when Christmas might come!"

Jack announced that he must bury his friend Dinis Alvares de Albuquerque y... another name of considerable length. Miya explained that they must report to their mission leader. Svetz saw Jack's

disappointment before Jack turned away to dig in the earth with his blunted sword.

Miya was right: they could not help with Dinis' funeral. Jack would see that they didn't know the rites!

Still-Translator off, suit radio on. "Zeera, people made coins out of gold, didn't they?"

"For a while. Then they went to paper and plastic."

"If I found you a little silver, could you make wire?"

"Superconductor would be better... oh, all right, Svetz. Silver's ductile, I can pound it."

Miya whispered, "Hanny-* "Go on ahead, Miya. I'm right behind you."

Svetz went back to where Jack was digging in the earth with his blunted sword. Translator on. “Jack, give me your silver for a few minutes and I'll give you gold coins back.”

Jack stared, then laughed. 'Truly, I hear the sounds of my home! Why would you do this?’

“Because I need silver.” Because I've evaded helping you with a friend's death rites.

Curiosity warred with distrust, and Jack handed Svetz his pouch.

Svetz went into the trees, out of sight. He took the largest coin out of the pouch, then dropped the pouch into the superconducting net of his trade kit. The conversion took a few minutes.

Svetz realized his mistake when he picked up the pouch. It too had become gold ... and that would tell Jack more than Svetz wanted told. He fished out a zipped sample bag and poured the coins into that. He brought that to Jack.

Jack poured the coins from hand to hand, then bit one. "Where did you get these, Master Svetz? And this?"

The clear plastic pouch. Futz! Svetz said, "That's a secret, Jack."

He took a coin and bit it, but it didn't have any taste at all.

The woman had taken the net off Thaxir. As Svetz watched, the green giant rolled over onto her side, then her belly, then lifted herself on all sixes. "Very good," Miya said. "You'll stay

healthier if you can exercise. Hello, Hanny.”

Careful of her balance, Thaxir slid a middle arm toward her pack. She saw Svetz go tense. “Hungry,” she said. She fished in the pack and came out with a lump wrapped in a patch of Hangtree mirror. What was inside might have been white cheese.

She ate half of it in two bites. Then, “Will you taste?”

Miya broke off a crumb and (ignoring Zeera's horror) put it in her mouth. “There's almost no taste,” she said. “Like tofu. Thaxir, I think you could eat dole yeast. Try this.”

Still on all sixes, Thaxir let Miya put a chunk of dole yeast in her mouth.

Her eyes squeezed shut. They heard her voice muffled. “Your food tastes like canal scum. My weight holds me paralyzed, and the tree hangs above us, taunting. So much for worlds. Miya, will you help me to lie down again? I don't want to fall.”

Svetz helped Miya ease the Martian down. He could feel Thaxir's strength. Her problem was fear.

He asked, “Do you eat meat?”

“Some meat. Most plants. To choose too carefully is to starve.”

“I'll find you something. Zeera-” He showed her Jack's silver coin.

“Counterfeit,” Zeera said after testing it. “Only part silver. Not very conductive at all.”

“Is gold conductive?”

“Why? Oh! Wait, now, Svetz, silver's ductile. I'll hammer this into shape and then we'll change it.”

“About the green giant,” Svetz said. “Why not put her in water? Let her float.”

Zeera took the charge out of a blaster and began to pound on the silver coin with the butt. “She's an alien, Svetz. What would salt water do to her? She might dissolve! Or anything! How did you get this?”

Svetz told her.

“This Jack knows you can make gold?”

“I handed him a bag of gold. He doesn't know where I got it. He's the last

of his crew. Who would he tell? And what if he does? There were tales of people who could make gold. They were called alchemists. That's why we made the trade kit, Zeera!"

Zeera belly-laughed. "You might have started that story, right here!"

"Why not?" Svetz reclined his chair and went to sleep. His dreams were shaped by the tapping of a blaster butt on a silver coin, and Zeera's monotonous swearing.

The pounding stopped.

What Zeera had was a narrow little bar, not quite a wire, to replace a mere whisker of superconductor. "All right, Svetz, turn it into gold. Miya, we want to videotape straight up."

And all of that was the work of a few minutes.

Miya went to help Thaxir roll over again. “Thaxir, do you understand all this? We're going into the future-”

“Where my companions and my consort-by-contract are all grown old or dead, but the tree is linked to Earth. Good.”

Zeera glared at them. “Last chance. Did any of you leave scraps of high tech underwear for some archeologist?”

Miya made a show of patting herself. “Nope.”

“Anything conspicuous in some unlikely place?”

“Jack,” Svetz said. They were leaving an ally.

Miya shrugged. Zeera flipped the FDD switch. The sun dropped like a giant meteoroid and plunged them into the dark.

Chapter 33.

They shared a meal and took turns in the bath bag, and drifted through half a year, while the Hangtree drifted up the sky. When Zeera judged it straight overhead, she turned off the FFD.

Night again. The tree loomed huge and weightless. Silver blossoms blazed down, but not so many as there had been. A tiny moon was tangled among the blossoms.

Miya said, "It's still not connected."

"Well, it's in position," Zeera said. "Hit it again."

“We do not want to miss this. Wait”
Miya took her time, lolling in her reclined chair with her mag specs pointed straight up. She said, “I can see the taproot and it's still fifty clicks too high. Zeera, hit it.”

Day and night strobed. Svetz had found nothing, but he kept his mag specs pointed. There it was, thrashing like a string in a hurricane.

In real time, what was happening? A root descended through ferocious stratospheric winds. Weighted at the end? Light-sails unfurled to move the tree's position against the wind below, to drag the line along a strip of anchor grove until- Miya hit the cutoff. The strobe ended just past dawn. They'd

jumped by twenty days.

Harder to see now that it wasn't moving, a silver thread descended from heaven. Its end was tangled in the black tops of the anchor grove. The winds might still be vibrating it, but it was under tension now. The tree was in place; its light-sail leaves were furled; its mass was pulling up.

“I want a better look at that,” Svetz said.

He and Miya drifted among the black treetops. A silver line no thicker than coarse wire rose from one of the tufts. It was tangled through the black cotton of this and two other anchor trees.

Miya collected vegetation for Thaxir to try. Black anchor-tree foliage; green

leaves and stems and a dug-up root; lichen and mushrooms; seaweed.

Thaxir liked lichen and certain leaves.

They jumped the Minim four days.

Zeera was getting cabin fever. She and Svetz went out while Miya stayed with Thaxir.

Three anchor trees had merged. The root line reached straight out of the common tuft. All the other trees, that had once stood straight, now leaned toward the trees that had caught the dangling line.

Zeera was clumsy on a flight stick. She hovered above while Svetz drifted among the black treetops.

Earth's ecology was adapting to the alien grove. Seaweed grew among the

trunks, and seabirds hunted fish. A bird had made a nest in the black foliage and laid eight small blue eggs. Svetz collected the eggs for Ra Chen.

“They'll rot,” Zeera objected. “We'll be months getting home with the FFD.”

“Doesn't the Minim have a cold box?”

“Have you seen one? Wait now, maybe the Vivarium only needs to study the interior structure. If we don't expect eggs to hatch-”

So Svetz put them in the trade kit and turned them to gold.

Another six-day jump made it clear that many of the anchor trees were going to merge. The root line had grown thicker, as thick as Svetz's little finger.

They jumped another ten days, and

studied the anchor grove through the Minim dome. The grove was merging into a single mass. Anchor trees farther away had fallen on their sides. Their trunks grew along the ground. Some merged head to tail. Only those closest to the Hangtree root still stood, and those leaned, growing into one conical stalk. The collar of black foliage was growing ragged.

Svetz and Miya geared up and went through the inner door. Miya's hand stopped him on the launch platform.

Below the launch platform, a ring of men in metal shells was converging on the Minim. A sailing ship built like an ornately carved bathtub lay at anchor nearby.

Miya dropped her flight stick. “We can't go down to meet them. No ladder. Better not fly either.”

“Right.” Svetz thumbed his translator on. “Jack!”

A soldier stepped forward. They all looked alike, and Svetz had to guess he was looking at Jack. Jack was clean. He had shaved.

Svetz shouted down, “What's-”

His own voice carried, but the translation didn't. Svetz turned up the volume on the device, pointed it down and asked in a normal voice, “What's happened while we've been away, Jack?” Let the translator do his shouting.

Jack shouted back. “A great wonder! This-you called these beanstalk roots?”

This monstrous beanstalk sprang from them overnight! It happened while I was in delirium from fever.” He moved like a healthy man now. Dole yeast might have cured a vitamin deficiency.

“But, another great wonder! The Saint Mercurius has arrived! Please make the acquaintance of Captain Magalhaes, Major IV reira, Father De Castro ...”

“Look at her!” ‘Wouldn't you like to-’
“So beautiful!” “Shame-free barbarian devils!” Other voices were intruding. Miya flushed and stepped back out of sight.

The translator wasn't picking up just the shouts. It caught several near whispers and translated them all.

“The one in the window, I wonder if

she bares her breasts too?"

"To have two such wives--"

"But they are dark."

"He gave Jack gold. He must have much more, to treat it so lightly."

"Why does he not invite us in? What might this wizard be hiding inside?"

Svetz tried to answer only the shouts from Jack and Captain Magalhaes. "A pleasure to meet you ... so far from home... little chance to explore ... the weather seems most pleasant in the morning... yes, some of us have learned to eat fish... what is the date?"

"I must ask the navigator." Captain Magalhaes lowered his voice, not to a whisper but to a softer authoritative bark. "Three mongrels of a dark, strange

race, a man with two wives who claims to be Christian and Russian. Father De Castro, is this a Christian? Is this a Russian?"

"I have met Russians. Their skin is whiter than mine. Whiter than my father's I should say, given what this fierce sun has done to my complexion. Their ceremonies are queer, and their beliefs are strange. Jack, I do not see what you trusted in this Svetz. Did you see his dwelling?"

"From a distance, sir, and then it was gone."

"And now returned."

"It stands on two chicken legs." This from Father De Castro. "I think this man may be a kind of Russian sorcerer."

From Jack: “Sir, I believe he saved my life. I know his generosity. “

“Well, Jack, perhaps you are too trusting.” Captain Magalhaes raised his voice. “Master Svetz, the year is fifteen sixty-four in the month of April, and we are ten days from celebrating Easter. We hope you will join us.”

Miya touched his arm. “Keep it cool here? I have an urge to cover up.”

“Sure,” Svetz said, and he stepped forward smiling as Miya stepped inside. “Thank you, Captain. Jack, look what I found!”

He tossed down a handful of gold eggs.

Jack caught two of the eight. The others fell and lay like golden eyes

looking up from the mud. The shelled men stared, for less than a heartbeat.

Then Jack reached to pick up another egg-and so did every other man except Captain Magalhaes. The priest got one. Jack had three; he stepped out of the scuffle and handed one of the eggs to Captain Magalhaes for inspection.

Miya stepped out wearing a ship's blouse. She saw the knot of excitement and asked, "Hanny, what did you do?"

"Who, me?"

"Hanny!"

"They've been waiting for me to invite them in. Miya, they must think we have an invisible door down there where there's nothing but hydrogen tank. Not showing them my home makes me an ill-

mannered barbarian, right? So I distracted them-”

“You gave them golden eggs and watched them fight!”

“Right,” said Svetz, and he waved and grinned widely and went back inside. “Zeera, let's jump a few days. I can't think of anything more we want to learn from these ... savages.”

“We'll miss their holy day. They'll be sure we're sorcerers.”

“Aren't we?”

They counted ten strobes and dropped out at midnight. Miya and Svetz went out with mag specs.

The Portuguese ship was still at anchor. A glare on shore near the ship was the remains of a cookfire. Oblong

wooden structures reflected infrared light.

Nothing interesting had happened to the Hangtree, so Zeera jumped them again.

Miya stayed to tend Thaxir. Svetz and Zeera went out.

The line from the sky was no thicker, but for a swelling several meters above the tuft. Xeera found another lump six meters higher, and another, and another.

“Pumps,” she said. “You can't get fluid very high with just capillary action.”

“Look, Zeera, those little bulges are crawling. Moving up the line. Not pumps. More like little cargo vessels.”

“Svetz, we're going to have to stay

and watch this.”

They dipped into the green forest to collect a variety of leaves for the Martian. Svetz asked, “Zeera, what about Thaxir? She could float if you put her in a pressure suit.”

“Well, yes, if her faceplate wasn't smashed!”

Svetz lifted again for another look at the swellings on the cable. “Thirty to forty meters apart. A tablespoon of water each. Hey, Zeera, what's wrong with this picture?”

“Maybe they pull apart as they climb. You know, accelerating.”

“They'd better. Otherwise ... add it up and it's enough mass to pull the tree down.”

“Is that what happened at Mars?”

“A million tonnes of war fleet. If the center of mass of an orbital tether drops below geosynchronous orbit, something's got to fall.”

Zeera said, “Maybe we can fix that faceplate.”

That part turned out to be easy. Zeera cut two lenses out of a fishbowl helmet and embedded them in a meteor patch, size large. That fit across Thaxir's pressure suit mask.

They waited for night and high tide.

Thaxir watched on the airlock platform while her captors worked at putting the pulley system together. Then, suddenly losing patience, she began climbing down the pulley ropes.

Svetz found it a startling sight. Thaxir had been sloughing her exercise, but now she was a tremendous insect climbing head down, all six appendages gripping the ropes. Despite Earth's gravity, six limbs were enough.

There were hot spots in the jungle. Svetz wondered what the soldiers thought they saw.

Thaxir descended into the surf. “Zzz,” she said, and the translator said, “Pleasure.”

Svetz and Miya swam around Thaxir. She seemed to be comfortable for the first time since her capture. She asked for her pouch, with her food and her harp, and they dropped that down to her.

Times had become too interesting for

the locals. They were gone, leaving time travelers and Portuguese in possession.

Miya and Zeera went to pick leaves for Thaxir in the forest. They took the trade kit; after all, they might meet Portuguese.

The Minim's cameras were mounted to watch the black knot where all the anchor trees now merged, where the root trailing from the Hangtree was now thick as Miya's calf.

The cameras found several Portuguese sailors on a climbing expedition. The near-horizontal trunks were easy going, but climbers were stalled near the peak. Still, why had he assumed that sailors couldn't climb? They must spend half their lives in the rigging of sails!

So Svetz might have gone with the women, but he stayed to watch.

He had thought the Portuguese might approach him. They had seen golden coins, then golden eggs, and now they must have glimpsed a sea creature moving about the Minim. But nobody had come. Perhaps their religious father figure had warned them away from wizards.

The women returned at sunset. They took turns cleaning up in the Minim before they would talk to Svetz.

“We met some conquistadors in the woods,” Miya told him.

“Learn anything?”

“Don't talk to strange men,” Zeera snapped.

Miya said, "We did some teaching too." The women wouldn't meet his eyes, nor each other's.

Svetz let it go. Eventually he'd get the story.

Chapter 34.

Thaxir had slept floating. This morning she played in the water, getting her exercise without fighting gravity. Svetz sat on the launch platform, watching.

He felt restless. They were wasting time, and there was no need.

How did a Hangtree grow? Could it survive to the present? Would it move on to some other star? What would kill it and what was its life span? The only things left to learn would all be learned

using the Fast Forward device. With the FFD they would watch it all happen, wait for present time, and ultimately report it all to the Institute- Thaxir! A breaking wave had caught her and was washing her toward shore!

A Martian might well find an ocean terrifying, and indeed she seemed paralyzed, borne headfirst toward the beach on her belly plates.

Svetz considered rescue. The tide was in. He could reach shore with a flight stick and risk being seen; or let the waves wash him in ... but then he'd be stuck onshore for hours ... though it might be the only way to help Thaxir.

Waves rolled her up the sand.

Wouldn't it be better to hail her, using

the translator, and ask her to wait? Futz no, if the tide went out he'd have to roll her back to the water! But now she was on all sixes, crawling headfirst back into the waves.

And shelled men at the edge of the woods were shouting, gesticulating, then dropping to one knee and aiming their kinetic weapons tubes- They fired into green water and foam. Thaxir was gone.

Miya and Zeera were both sleeping. Svetz caressed Miya's foot. She snapped alert in an instant.

“Portuguese onshore. I'm going to have to talk to them. Is there anything I'll have to apologize for?”

Behind his shoulder a chilled voice said, “Do not apologize for anything.

That's an order, Svetz.”

Miya said, “Believe it, Hanny.”

“Anything to make them apologize for? No? Great. And what do I tell them about Thaxir? She was onshore. They saw her.”

Miya said, “Let me sleep.”

In the sshh, hisss of waves there was a music born of madness. Svetz tried to ignore it, but his mind ran away from him, chasing the beat.

The water was withdrawing from the land. Svetz glanced down to be sure, but yes, Thaxir was in the shadow of the Minim, safely hidden in floating weed. She was playing her windstorm-minor harp in time with the waves.

Svetz called a cheery good morning to

six Portuguese.

The conversation that followed was all shouting over diminishing distance and hissing waves, but Svetz didn't have to do his own shouting.

The Captain was missing a man. Had Svetz or his wives seen Alfonso Nunes?

Svetz answered, "Well, but men in armor all look alike from a distance. Was there anything distinctive-?"

"Alfonso Nunes is short, Captain, very hairy, and lost his helmet long ago, so his face is dark. "The translator was picking up normal voices again.

Captain Magalhaes shouted, "Six went out to the woods yesterday afternoon. Five returned. There was no blood on the- survivors. They will not

“speak to any but the priest, and Father De Castro will not speak. I must not violate a covenant, but I must know. Has any soldier tried to rob you, Master Svetz?”

“Nobody has troubled us here.”

“Not even the great sea creature? I saw it myself, Master Svetz. We fired on it to protect you.”

“I think it harmless. I armed myself and swam with it yesterday, Captain, and it did not trouble me.” Svetz was beginning to enjoy himself. Remembering Whale's undying hatred for its captors, he said, “Many large sea creatures enjoy the company of men.”

“It is known that you and your women have gold. No?”

“We gave you what we had. Why would we need such stuff here?”

“He lies, Captain, let me try my surgical skills on his tongue-”

“Why, Peter, would you wade into the sea to shout your threats up at him on his platform? Peace, Peter. Patience. Master Svetz, where did you find these golden eggs?”

The Portuguese were growing hoarse. The shouting was wearing them down, and Thaxir's music, that might have been the sound of the sea hereabouts. They were losing subtlety; their greed showed through.

An antic whim took Svetz. Futz, they'd never trust him anyway, and now he was sure that they'd offended his women. He

pointed straight up along the Hangtree.

“From up there. I got the coins there too, but I'm not wanted back.”

By their questions he let them add their own details. Together they concocted a wild tale in which Svetz climbed to orbit, robbed a giant of coins, returned and captured a bird that laid golden eggs—who had escaped, and must be still at large in the jungle. “Maybe Jack saw it. Shall we talk to Jack?”

“Jack has gone exploring,” said Captain Magalhaes. “We should join him, I think. I thank you for the suggestion.” Captain Magalhaes turned away, but some of his soldiers were looking toward the green jungle, and others toward the Hangtree/Bean-stalk

rising to infinity. And the voices went on.

“Alvarez, you thieving son of a dog, tell me what that sorcerer's women will have told him! Will he kill us all with his magic?”

“Captain, they are not hurt. We only wanted to have our way with them.”

“But they are hiding gold, you understand, Captain!”

“No, we would not have hurt them even if-”

“Alfonso threatened the dark woman. Truly, he might have hurt her, not just had his way with her, yes, Peter?”

“Peter Alvarez da Orta, if you lie to me now, God will never find your soul.”

“They were not hurt! Sir, sir. they

were not hurt! We blocked their way. Alfonso Nunes set the edge of his sword against the black woman's throat and spoke his threats, and then we all fell over and could not move. Evil was the day we came to this unholy place.”

“But you could see and hear?”

‘Yes, Captain.’

“Two women. Six men. Pitiful. What happened to Alfonso Nunes? Did they drag him away?”

A pause. Then: “Yes-”

“No-”

‘We didn't see-’

“Captain, Captain, no! Stay your hand! We will show you. Peter, we must. “And they were among the trees, and their voices fuzzed out.

Thaxir was elated. She tried to describe the sensation of riding a rolling wall of water down onto powdered rock in two and a half Mars gravities, with all her limbs pulled against her body to make her into a great unstoppable missile. The translator was losing phrases. An epiphany, Svetz gathered.

How did she feel?

Her soul was complete!

But physically?

Water was her natural element! She could float, waking or sleeping, and rest, or she could swim against water's resistance and exercise her whole body.

“We need to be about our mission,” Svetz said. “Will you come with us into the future?”

Thaxir was startled. She took some time to think, then, “Would you leave me behind if I asked?”

“Why not? But I don't think it's a good idea. Earth's gravity will kill you young, even if you could find a food supply. In the present we can levitate you. We'll take care of you in the Vivarium until Willy Gorky knows how to make Mars habitable again.”

Thaxir asked for details: Vivarium? Levitate? Then she rolled on her back to look up at the Minim. “How will you get me back up there?”

“Do you think you can climb?”

“Well, let me try.”

Svetz watched her climb the ropes of the half-completed pulley. She didn't

have trouble until she was nearly free of the water. There she stalled. Miya came out on the platform to watch. Thaxir dropped back, and tried again, and failed again.

“We'll set up the pulleys,” Miya said. Thaxir disappeared underwater.

Svetz and Miya went to work. They weren't surprised when the green giant didn't surface at once. It might be her last chance to swim. The oceans of the thirty-second century were polluted to a green-and-black goo.

During a rest break he turned his mag specs on the Hangtree. There had been attrition, but he saw at least two climbers in the black tuft. The root that ran into the sky had become as thick as a

man's leg. A third man was climbing it, eighty meters up. Another was pulling on the root.

He could hardly be needed to hold it steady. He too must intend to climb it.

The view through the Minim dome was the same as the camera's, almost straight up the anchor trunks, past the underside of the black tuft, and up into infinity. Anyone might be in the tuft.

Zeera came out. "What's this about?"

"Getting out of here, I thought." They'd been having trouble arranging the pulley system. It was new to them both. "Now I'm not sure. Zeera, did you kill someone in the woods?"

Silence. Miya ignored them both. Svetz said, "Alfonso Nunes. Short, very

hairy, almost as dark as you. Didn't wear a helmet.”

“Six of 'em thought they were going to rape us and torture us,” Zeera said. “Miya stunned them down. We talked a little about what to do with them, but we couldn't move them without letting them wake up. Just putting them to sleep didn't seem like much of a lesson. Miya wanted to steal their pants and dye their, uh, pubic region.”

“Not enough?”

“They think we've got gold. They would've tortured us to get it. Rape, that's just entertainment. Svetz, they take it as their due. A woman doesn't walk alone or speak to a man if she has a protector to speak for her. A woman

alone is, is anyone's. They have to be taught, Svetz! And you'd steal their pants?"

"They're showing something to Captain Magalhaes right now." Svetz asked, "What is he going to see?"

Zeera turned away.

Miya answered. "They're going to take him to that temple Jack showed us. He's going to find a gold statue. Life-sized. Reclining. Obscene. Why didn't Thaxir toss us her pack?"

"Don't know." Right, the Martian had left her pack underwater when she tried to climb. > "Where is she?"

"Don't know. Am I being distracted, Miya? Always talk it out, remember? Let's talk about a gold statue. I take it

you,” turning to Zeera, “used the trade kit on Alfonso Nunes.” Svetz looked into the forest, but the Portuguese were all gone. “Why him?”

Miya answered. “He had his pants off. He had Zeera down on that stone dais before I got to my stunner. Knife at her throat. I had to stun them both and then wait for Zeera to wake up. He stank like nothing I've ever smelled-”

“Like the ostrich cage after the roc broke loose,” Zeera said. “And he was hard-”

“He had an impressive erection. Nunes could have had a great media career if he'd waited a few centuries, right, Zeera?”

“Right. You could have stopped me.”

“Zeera, I had a different impression,” Miya said coolly.

Svetz said, “They're showing that statue to Captain Magalhaes right now.”

“Why'd they wait this long?” Miya wondered.

Zeera laughed. “Gold,” she said, mocking. “They don't know how to move it or hide it or sell it, but they want it.”

Miya said, “Hanny, we turned some of those stoneware things to gold too, and that row of knives. They might think it was all native work. Hide him in plain sight. What is it, Hanny?”

L.AKMY NIVBN Svetz touched his mag specs. What ho thought he'd seen—“Thaxir.”

Thaxir was out of the surf and almost

to the trees. Her pack was on her back. Six-limbed, Thaxir managed a fast crawl. “What's she doing?” Miya wondered. “Escaping?”

“I told her we'd leave her here if she wanted,” Svetz said.

She was into the forest, shouldering trees aside.

A Portuguese came running out. He ran down the beach, southeastward, never slowing.

They made a meal while they talked it over.

“The default option is that we can leave her,” Zeera said. “Any objection? Willy Gorky wanted us to negotiate with her, but she's not negotiating and she's not in contact with the tree anyway.”

“She'll starve,” Miya said. “Hanny, don't you have an opinion?”

Svetz had been letting them run on while he watched the anchor grove. They were wasting time, but Svetz himself shied from abandoning a story half finished.

Jack was on the Hangtree, a hundred and twenty meters above the anchor grove. He'd left his metal shell below. This would not be much like climbing rigging. Ropes would have some slack to them, would run horizontal in spots. Still, he climbed on. Two men, Portuguese but without their shells, waited below him in the black foliage.

Thaxir was not to be seen.

Svetz said, “She knows what she can

eat. You know, I've taken a lot of prisoners in my time. I'm used to considering them property, but they don't talk to me. I'm inclined to consider that Thaxir owns herself. I'm surprised at what she can do in Earth gravity. Maybe she'll maim herself. Maybe she'll crawl back to the sea for rest and sleep, and forage on land, or just eat seaweed. Maybe the conquistadors will kill her, but she knows the risks as well as we do or better! So the question is, how long will it be before she needs rescue? Do we stay or go? Or Fast Forward by a year and look again? Hyahl”

“What?”

“It's her!” A great yellow-green insectile shape poked itself above the

black fluff. Jack's companions Hung themselves away, out of the tuft, and how they fell was not to be known. The Martian began to climb, six limbs around a silver thread.

Miya was scrambling for mag specs; Zeera had hers. "There. She can climb. She was faking us out, sure as futz. How high can she expect to get?"

"Whatever. We can't do anything about it. The Minim won't fly and the flight sticks won't carry anything like that much weight."

Thaxir wasn't moving fast.

Jack was hardly moving at all.

"She's catching up. She'll have to get past him," Miya said.

Jack looked down and saw the

monstrous shape coming up at him.

Zeera said, "Svetz, try your IR on the beach."

"Zeera, I want to see-" But he knew the sound of terror. Svetz obeyed: found the beach, looked for hot spots, and zoomed.

Where a Portuguese had burst from the forest forty minutes ago, nine were now wrestling with some massive tube.

"Zeera, get us ready for Fast Forward. I'll cut these lines." Svetz dropped to the cargo level and went out the airlock.

Within the shadows of the forest, shelled men were backing their big metal tube against a tree trunk. Svetz had a familiar view, straight down the axis.

He slashed away the never-tested

pulley system. Most of it fell into the sea. He pulled what remained through the airlock, then stabbed virtual buttons. The airlock doors closed.

“Get us into FFD,” he told Zeera, but she was already doing it.

The tube blinked fire. Clouds raced. The sun set and rose again.

“I wonder how that came out,” Miya said.

Svetz said, “I'd say Jack is a doomed man. And isn't it a wonderful thing, to be able to leave all your mistakes behind? I'm just wondering, though, what will happen if those men go home with an obscene statue made of solid gold. They'll have all of Europe thinking that there's gold all over these continents,

and the locals don't deserve to keep it.”

There was silence and the flicker of time passing, until Miya asked, “Hanny, did you do anything with the talker?”

Talker? “No. Zeera?”

“Last I saw it, it was lying... lying right next to Thaxir's head. Do you suppose that was in her pack too?”

“It was broken. Beyond repair, wasn't it, Zeera?”

“Oh, yes.”

“But that's still the answer,” Svetz decided. “She took the talker. But why?”

Chapter 35.

During the opposition of 1894 a great light was seen on the illuminated part of the disk, first at the Lick Observatory, then by Parrotin of Nice, and then by

other observers. English readers heard of it first in the issue of Nature dated August 2. I am inclined to think that this blaze may have been the casting of the huge gun, in the vast pit sunk into their planet, from which their shots were fired at us. -The War of the Worlds, by H. G. Wells The Portuguese ship lasted a minute or two, then zipped away.

They watched the anchor grove shed its black top. A knot remained where it had been, where anchor trees joined the root of the Hangtree; but it had grown a click or two higher, and the marks of a join were fading. It was all one organism now.

Far above, where Earth's atmosphere no longer filtered the sunlight of naked

space, photosynthesis stored energy as some form of sugar. Water and soil nutrients from below, sugar from above, and so the tree survived and grew.

They watched, and argued, and took turns reading notes into the record. They ate dole bricks and drank recycled water. They took turns sleeping. Svetz and Miya made love on the cargo net while Zeera slept above them, beneath a strobe made by the whirling sun. Years passed outside the Minim's ruined hull.

More ships came. Wooden buildings sprang up. The green forest shrank back to reveal patchwork farmlands. Farm gave way to factories, then to city.

And the shore receded so gradually that Svetz hardly noticed, but now the

Minim stood among six- and eight-story buildings. Was the land rising? Land did rise and fall... but the Hangtree only grew greater. Svetz could picture roots spread through the bedrock beneath this land, lifting.

Passing time began to wear on the Minim's crew.

Well over a thousand years of development had shaped the Minim's water-recycling system, but how well had it survived mar-tian shellfire and a crash landing? Fast Forward itself was experimental. After several weeks aboard the Minim, in an environment that changed like dreams, it was easy to imagine that water had begun to taste of trace elements accumulating, that dole

bricks had gone bad, that air was developing a stench.

Zeera developed an annoying cough.

Passing centuries swept them into a future that diverged from their own. The tree was grown vast. It cut the sun's arc like a storm cloud moored in place. Briefly, tall structures with glass faces rose in a crescent about the base of the Hangtree, using the trunk as a main support structure. But the tree was alive and its shape changed year by year. Glass slabs stretched and crumbled... and remained in place as slums. The ruined glass faces and the cracks were mended with stucco or concrete, over and over. External sensors registered air becoming Post-Industrial.

Zeera's cough cleared up when she saw that. "They'll be burning coal in Europe. Running steam engines. Svetz, Miya, that stuff is almost breathable!"

"Read it again," Miya suggested.

Though factories had appeared even on this equatorial shoreline, readouts still showed too little carbon dioxide, too much oxygen. "We can't go out anyway," Miya said. "Futz, we're all going crazy in here! But we can't. First thing you know, we're under arrest for illegal parking."

"I don't get this," Zeera said. "We're assuming the Hangtree makes sugar, right? Even if chlorophyll isn't what it's using. Martians live on the sap! But it's being made outside the atmosphere, so

where's all this oxygen coming from?"

Miya was willing to speculate. "CO₂ and water come up with the sap. Sugar and oxygen go down the same way, or maybe oxygen just diffuses through the bark and drifts down. What the futz-"

Miya's reactions were faster. She hit the FFD switch.

The sun stopped at high noon, tangled in mirror blossoms.

A metal structure as big as a ten-story building came out of the sea on a tripod of three-hundred-meter legs. It was walking toward the city, but now it turned ponderously, as if it had just seen the Minim. Svetz could almost make out what was inside the tiny dome ... and then light brighter than a thousand suns

flared at them.

Even a Softfinger plasma blast wouldn't have hurt the Minim's superconducting hull. But the gouge over the oxygen tank flared and gave way in the instant before Miya stabbed the FFD switch.

Then everything strobed, but the Minim rang like a bell. Svetz's seat flung him forward and then back, cracking his neck like a whip. He saw flame backfiring through the break in the oxygen tank. An instant more and the Minim would have exploded like a car in a movie.

Seasons passed outside while the Minim creaked and toppled to a thirty-degree angle, and stuck there.

The three-legged thing was gone.

The city had been leveled. They watched it being rebuilt.

“I think those were Softfingers,” Miya said.

Svetz said, “I didn't see. Even if it was Martians, were they from Mars or the Hangtree? We're deep into Industrial times, after all. Mars must be dying. Zeera, how long-?”

‘Twelve hundred years to go.’”

Svetz was in the shower bag. The display flashed a radiation warning, and Svet/ was about to yell when Zeera switched off the FFI).

He said, “I thought I saw-”

“Here.” Zeera had the meteor sensor going in passive mode. A map of the

Earth showed a swarm of red arrowheads. "We just passed the Year Zero, Hanny. First atomic bomb. Propeller planes. Anything that cracks the speed of sound now isn't local."

Arrowheads swarmed over the center of the North American continent, but others were on the equator just about... here? Svetz looked up. An overlay on the dome was blinking red arrowheads around little fast-moving dots.

"Those are Softfinger lens ships," Miya said. "They're invading Earth again. What do you think, are they looking for nuclear test grounds?"

Ten lens ships all wheeled to converge on the Minim. Svetz said, "I think we should punch out."

Miya hit the FFD. Plasma cannon blinked and were gone. Cityscape around the Minim showed craters and broken walls. They began to grow back.

“Futz. I'd have liked to know more about that,” Miya said.

Zeera said, “Mars must be on its last breath by now. In twenty years we'll put our first probes around Mars, and not a drop of water or a whiff of oxygen left. They must be desperate. Anyway, we're halfway home.”

They waited it out.

They detected a much bigger blast of radiation: another lens ship attack, or else they'd seen the One Race War, if time hadn't been bent too badly.

An earthquake shook the city, blink,

and half the buildings were down. That must have been the shock from the Hammer of August falling offshore from Chili in 2391. Shoreline cities had washed away. Bureau of Space Resources had not been able to stop the minor asteroid; they didn't even have spacecraft to mount a pretense. The United Nations hierarchy took the blame for the destruction, and were executed. Waldemar the First took power.

Building styles changed: they were smaller, more graceful, with more land around them. Population was dwindling, partly due to UN planning, but not everyone could adjust to post-Industrial air. "We're right on track," Zeera said, and coughed.

“We don't know that.”

'Time lines converge when they can. Changes we make are smoothed out. You've seen that, Svetz.”

Miya usually sat out these discussions. She didn't know enough history to have an opinion. They mostly argued to convince Miya.

So Svetz said, “The time machine is too big to move itself. The extension cage goes out on an arm that can swing in four dimensions. Coming home, there's no telling where it might swing to. I've met someone from a culture that blasted the human race to extinction. Wrona came from one where wolves evolved instead of men. But I've always come back to the Institute time line.

Because the extension arm is attached at both ends! But the Institute time line can change too, Zeera. You've seen that.”

“And we put it back.”

Miya was looking up through the dome.

The Hangtree filled the sky. The Moon and stars hung in its branches. The Moon was only one light among a hundred mirror blossoms. Mag specs could find strange architectures forming tiny cityscapes along the trunk.

She whispered, “What legends are being made about that? We don't have to wonder, do we? Yggdrasil. The axis runs through the Earth. A variety of heavens are in the branches. Hanny, how could we have had the legends before

the tree was in place?"

"There were legends of werewolves before I ever found Wrona's time line," Svetz said. "Dreams and stories wander across the time lines."

"Well." Miya gestured upward. "You think it's so easy, then put that back the way it was."

"I thought you wanted it."

The black was very restful. Sleep had not favored Svetz for a long time, but now the darkness went on and on. He slept as if drugged.

In the sudden light he snapped awake and- The sun sat on the ocean and wouldn't move.

Barricades and familiar UN police uniforms surrounded the Minim.

Thousands of people surrounded the barricades. A few wandered inside the perimeter, acting like they knew what was going on.

Miya and Zeera were asleep in their command chairs. Svetz ate a dole brick while he watched and waited. Presently Miya stirred. Svetz asked her, “Did you turn off the Fast Forward?” and then he noticed a dribble of silver where Jack's coin had run molten. Miya saw what surrounded them and jerked upright. “It's present time! Hanny, we need to find a vidphone.”

Chapter 36.

The stem spreads its branches over the entire sky; their leaves are the clouds, their fruits the stars... The ash

tree (Fraxinus) itself is the Nordic Tree of Life, symbol of strength and vigor....

-”The Ash Tree,” from Mattioli's *Commentaires*, Lyons, 1579 As a police Roton lifted them toward the sky, they saw a metropolis of eight to ten million spread beneath the vastness of the Hangtree. Root Town, the police pilot called it, and World Tree.

An hour later the Roton set them down at the Institute for Temporal Research in Angels City, west coast of North America Province, where the garden had been.

They took deep gulps of air flavored by cactus blooms. The roses and once-edibles were gone. Scores of varieties of cactus bloomed in dry earth, and

perfect crescent dunes. Was this some whim of the new Secretary-General?

And where was the ornamental pond? The pond was where they dumped the heat from a returning X-cage!

They were still enjoying the taste of post-Industrial air. Zeera's cough had come back during that last thousand years, and Svetz had caught it too. They'd been sure the Minim's air was foul. The instruments were sure it wasn't.

A crowd wove its way through the cactus to meet them.

Willy Gorky shouldered between them. He had lost weight. "Miya, why didn't you call? How did you get here?"

"Fast Forward. What else was there?"

she snapped. "Willy, why didn't you send us an X-cage?"

"We've only just finished resetting the small X-cage! That was no trivial problem, Miya. You never gave us a date."

Miya said, "But why would-"

"Got it," said Svetz. Ra Chen's disgusted look suggested that he'd seen it too. "How long has it been since our last call? Four hours?" Ra Chen shrugged his eyebrows: Yes. "Miya, we used Fast Forward, and that's why we didn't get rescued. Because we're already here."

Zeera was nodding. "The other end of the talker link, before the talker was smashed. That was present time. That's when the FFD burned out. These things

won't go into the future. Four hours ago? If we'd been awake we'd have called you right back!”

“But why can't we still send-” Gorky stopped, seeing the way they all looked at him. “What would happen if we sent a rescue vehicle now? Would you pop like so many soap bubbles? Would I be looking at two of everyone?”

Nobody answered. Nobody knew.

The time machine was running on standby. The large and small X-cages looked ready to go, though none of the stations were manned.

A dozen techs were seated around the drinks dispenser, off duty now that the time travelers had been returned. Svetz recognized dark Hillary Weng-Fa, pale

Zat Forsinan and ruddy Wilt Miller from his own past. The rest were strangers, though they knew him. While the two Heads and three time travelers walked in and took seats, Zat and a stunning Eurafrican woman, tall and narrow as a soda straw, put coins in the dispenser without asking what anyone wanted, and brought them-water.

Clean water. Svetz savored the taste. People were acting peculiar; he would wait to learn why. And why the drinks dispenser had only two settings. And what was it about the way they all looked?

The time travelers must look like three rats turned loose from a dirty cage. Ra Chen was amused and not hiding it.

He looked good: he too had lost weight.

He said, "We jiggered the inertial calendars on the X-cages. The intertemporal talker is a kind of a little X-cage, after all. Whatever travels in time needs more energy to co-exist with it. It's like hitting a bump: we can sense that."

Willy Gorky exclaimed, "That's what you were doing?"

Ra Chen laughed. "We never got a date, but there are tricks we can pull. We're all set to send the X-cages back toward minus 500 AE, which is just pre-Columbian, and pop out where the talker was ruined-when you landed, right, Zeera?-pick you up, leave an instrument package and come home.

“Still, we don't know everything about time. Zeera, did you learn anything about the squirrel?”

After a long moment Zeera said, “Squirrel?”

Ra Chen frowned. “Batatosk?” Zeera was still looking blank, as well she might. “Secretary-General Victor Four wants the giant squirrel that used to run up and down the World Tree. It was bigger than Whale, so he's got to have it. If it was a squirrel at all. Ole Romer, the ancient Danish astronomer, he saw it and thought it was a squirrel, but what it was...” Ra Chen felt their confusion. “What?”

“Sir, it seems we've changed the past a little,” Svetz said. “What was our

mission?"

"We know when it died, Svetz. The impact caused the tidal wave that washed away Rio de Janeiro! It might have been sick or old for longer than that. But, futz, the X-cage was already set for pre-Columbian. Batatosk must have been in its prime then. Locate it, send for the large X-cage, get the squirrel and bring it home."

"Nothing about Martians?"

"Martians?"

"Tree dwellers?"

"Legends. Fire giants, frost giants. If they were real, they've been extinct since... oh, before serious telescopes. Those were Martians?"

Willy Gorky looked at Ra Chen

before he spoke. "I'd like to rescue some Martians. Did you have any contact with them?"

"Mostly hostile." Svetz saw body language he half understood. He asked, "Tell me about merging History Bureau and Bureau of the Sky Domains."

Willy said, briskly and without rancor, "Right, it's all History now. Victor Four likes strange animals, just like his brother. He's financed a Heavy Lift Extension Cage."

"We fulfilled our mission," Svetz said a bit belligerently. "We went to Mars for the seeds to grow that," and he gestured southeast. Far around the curve of the world, the Hangtree still owned the sky. "We didn't just grow seeds, we brought

back the tree itself. With that we can own the sky!”

Willy Gorky said, “Not under Victor Four, I think. Mars? What's it like?”

Svetz swept up their plastic cups and went to the dispenser for refills. He came back cradling five cups, and set them down without spilling. He'd bought himself a few seconds to think.

The dispenser had only two settings: water and carbonated water. That seemed important.

He said, “Willy, we had a Martian too, but she's gone back up the tree-”

Bong.

Miya demanded, “What the futz was that?” But Svetz and Zeera were running toward the Guide Pit, and the Heads

were just behind them.

'Talker," Svetz called back.

"Hut we can see all three extension cages!" Ra Chen shoved into the Guide Pit. He tapped the virtual display. "Head! Talk to me."

An inhuman voice spoke with the sound of a sustained belch.

'Translator!" Willy Gorky demanded.

Zeera beat them to the draw. "Let me set it, sir. This is Portuguese. That's Martian."

Ra Chen made way for Gorky. 'Talk to me," Gorky said.

Syllables burbled. The UN translator said, "Such is our intent. Is Miya within sound of my voice, or Svetz, or Zeera?"

Miya pushed past. "Miya, here and

now, 1109 AE. Thaxir?”

“Yes.”

A tech was trying to fine-tune the talker, but Gorky was tending to that himself. Softly he asked, “Zeera, could this be your talker? The setting's changed. How badly-”

“It was ruined!”

Miya had been talking rapidly with the voice at the other end of time. She said over her shoulder, “Thaxir says-tell them yourself, Thaxir.”

“I took the ruin of your talker. We studied that until we could build one ourselves. What you said of probabilities made sense to us, Miya. The love of adventure may take some of us to future Earth instead of the stars.

What must we do?"

Ra Chen asked, "How many want to come?"

"Thaxir-?"

"We have travelers from all of the five races." The martian voice gave numbers. Four green giants, fourteen red humanoids, twenty Softfingers, three of the great crabs and six of their humanoid symbiotes. Of the Pious Ones, only the Smiths had settled on the tree; eleven would try Earth. "If you can give us low gravity, I will come too. I am too old to reach the stars, even if the tree would go, and I laid my last egg long since."

"Sir, I have the new setting," Hillary Weng-Fa said.

Gorky demanded, "We can call back?"

And get thence with the small X-cage?"

"Yes. They're calling from plus-eleven AE--"

"Miya, tell her we'll call back," Ra Chen said.

"Thaxir, we're switching off now, but we'll switch on again before you can draw breath. I know how strange that sounds, but it's true." Miya switched off.

"They want rescue!"

"Svetz--"

Svetz had been adding it up. "One load in the large X-cage, but they'll be crowded. Setting up a cage in the Viv... Bestiary is no problem. Whale's got all the room he needs. That many Martians will too. We can set shelves at different levels, and give them material to make

houses-”

“The mission,” Ra Chen said gently, “was to retrieve a squirrel.”

Willy Gorky asked, “Just what kind of promise did you make, Miya?”

“Rescue as many as want to go. That was our mission, Willy! You wanted a Beanstalk, but Waldemar the Eleventh-”

“Miya,” Willy said gently.

Walls have ears. Victor the Fourth was the Secretary-General, the only Secretary-General. “-wanted Martians,” Miya said anyway.

“Willy,” said Ra Chen, “we never really get used to the way time changes things around-”

“Martians,” Willy Gorky said. “Ra Chen, does it strike you that Martians on

the World Tree would know a lot about the squirrel? They've lived with it. If we can get the Martians first, we'll have their help in retrieving the squirrel."

"Two trips for the large extension cage. Twice the cost."

"Right. Absolutely. What settings are you using for his cage?"

"Batatosk. What does he eat? Nuts the size of this dome? No, that can't be it, because if one of those ever fell, anytime in human history, we'd have records. So we don't know what to feed him. Don't know how much room he actually needs. It might be thousands of clicks. He might want a vertical treadmill with variable gravity, but I'm guessing there. If we take time to study him to see what he needs in

the way of a cage environment, he'll probably die." Willy Gorky glared into Ka Chen's eyes at close range. "If only we had somebody to ask\''

"Point taken, Willy."

"There's lots of Martians. We can house them. Well get readings for archaic Mars right out of the Minim. But we only get one shot at Batatosk. If he dies--"

"Yes."

Not liking it, Svetz asked, "Wouldn't we be giving the squirrel's cage to the Martians?"

Ra Chen brushed it off. "We built six of the big cages, when Waldemar Ten was SecGen and we had the funding. Whale in one, Roc in another--"

“Roc survived?”

“Used to be Ostrich? Anyway, Batatosk would have gone in one. If we ever get the Heavy Lift X-cage running we'll go after the Midgard Serpent, and if we can ever reach back far enough we can house a Brontosaur and a Tyrannosaurus Rex. Separately. No, housing's not a problem, and ... yes, drown it, we'll get the Martians. Get 'em back for me, Miya.”

Chapter 37.

UN officials were beaming the Minim's records from Root Town to the Institute for Temporal Research in Angels City. It was a slow process.

“If you're near the tree, you can relay from the mirror sails, but we're not close

enough for that. There are only a few orbital windows such that a relay satellite won't crash into the tree," Willy Gorky said. "You'd think geosynchronous orbit would be safe, but the mass of the tree only allows you two stable points, Lagrange Four and Five, just like the Moon. You can do twelve-hour pole-to-pole orbits. Not near the tree, of course."

"That must take lots of delta-V," Svetz said, and sipped his water. He'd barely heard the word, but he knew it was a measure of fuel consumption. In Earth equatorial orbits were the easiest to reach.

"You're drowning right. You need so much delta-V for either set of orbits that

you might as well go to the Moon for anything but weather satellites and signal relays. All these stations are too high. You lose signal definition.” Willy's fist clenched on his glass. “Svetz? You could put anything you wanted in low Earth orbit without smashing into the World Tree. Right?”

“We could, right.”

“Drown me! Even men?”

“Right.”

“When?”

“First man went into orbit in plus sixteen AE.”

“Drown me! We had to go straight to the Moon.”

“Is that bad?”

“In the reign of Chaka Third, between

plus one eighty and two hundred AE, we put a dozen men on the Moon, brought 'em back, and never went again for thirty years! The world had already used up too many resources. Svetz, without the tree we could have had a Moon colony by fifty AE! Our space program is a pitiable thing.”

“You said that.”

Willy looked up. 'To you?’

“Wait.” Svetz thought. “That was then. That was the other you, when the first man stepped on the Moon in 24 AE. That Willy wanted a Beanstalk!”

Aghast, Willy asked, “Why?”

Pitiable, Svetz thought. “Our idea,” he said, “was to run elevators up the tree, or a linear accelerator. Get to orbit and

beyond for whatever the electricity costs. Drop asteroid mining ships from the upper end.” He drank the last few drops of water. Water was expensive; he hadn't noticed yesterday. “Nobody thought we'd have to fight seven kinds of Martians to do it.”

“Vie Four wouldn't support it anyway.”

“Willy, I'm starting to think that nobody really tries to get the stars for his grandchildren. Anyone who wants the stars must want thorn now. For eleven and a half centuries-”

“Sir.” A tech was trying to get Willy Gorky's attention. Willy turned as if glad to escape.

“Sir. We have numbers for archaic

Mars, air comp, temp, gravity and so forth-”

“We need to rework the large X-cage and furnish a cage in the Bestiary. Six hours, Svetz. Entertain yourself.”

The dole yeast dispenser was empty.

Svetz brought Miya a cup of water. Miya had been talking to Martians for hours.

“The first invasion from Mars was a Softfinger fleet,” she told him, “in minus fifty AE. We saw one of their walkers. Almost nobody came back. The Martians on the tree thought it was some disease of Earth that killed them all. We think it was gravity.

“Thaxir says the rebuilt talker has been ready for centuries. Nobody

wanted to use it. All these centuries, the peoples of the tree must have thought they could invade Earth any time the tree failed them.

“When the first few atomic bombs went off in Year Zero, the Softfingers tried some reconnaissance missions. They were sure we'd use the bomb on the tree if they didn't hit us first. They wanted to know where the bombs were. Most of their work ships never even set down, but when they got home, the pilots were dying. Earth's gravity breaks their internal membranes. I've been trying to tell Thaxir how antigravity in the Zoo works-”

“Make room.” Svetz slid into place and said, “Svetz at 1109 AE calling

Thaxir. Are you thence?”

“I am hence, Svetz.”

“The antigravity the Sky Domains uses is expensive. We don't use that in the Zoo-which they seem to call the Bestiary now, Miya. Thaxir, we use a magnetic field that acts on the magnetic moment of hydrogen. We can float organic material. I saw them float a half-million-ton bubble of seawater into Whale's cage, then move Whale in without hurting him. Believe me, putting martian gravity in a Mars environment cage is the easy part.”

“I will convey. Svetz, Miya tells me that there are none of us on the tree in your future.”

“Our past. Your future. They tell me

the same. They tell me some tremendous animal-”

“Yes, Miya spoke of that. A squirrel is a beast that run up and down trees? And your first telescopes saw something large running up and down the tree? Svetz, I have consulted with our storytellers. Long ago, red Martians invaded Crab territory during a border dispute. We think your Ole Romer saw their heavy war lift while they were ferrying troops and armaments.”

The Secretary-General wasn't going to like that, Svetz thought. He said, “Get yourselves into place. When you're ready to be picked up, and not before, smash the talker. That brings us. We can't hold the large X-cage in the past

for very long at all.”

“Yes, Miya told me. Svetz, I need rest. I don't have your human stamina.” And the ready light went out.

Miya looked exhausted, gaunt and drooping. Svetz told her, “You need sleep.”

“And something to eat, and a bath. We both... all need baths, and nobody's offered us one.”

“Let's check it out. Find Zeera too?”

“Good.”

“Miya, it's present time. Do I still look good to you?”

She smiled, took his hands and squeezed hard. “You look like me, I bet. Tired. Half starved. Let's get something to eat and then bathe each other.”

The large X-cage loomed over the middle of the dome. An extension arm behind it ran into the same metal housing from which a smaller arm led to the small X-cage, to the right of the Guide Pit.

Strangers were at work in the Pit, writing in the specs that had come from the Minim. More strangers were gluing a bin the size of a bungalow to the tipper curve of the X-oage. Wilt Miller was supervising. He hailed them.

Svetz was relieved. Most techs were total strangers who had known him for years. That was disconcerting. Wilt was an exception, and easy to spot: skin that was always sunburn red, and flame-red hair.

Wilt gestured at a pile of hardware two men high. “Look it over. What part of this is garbage? What are you going to need for this mission?”

They discussed it.

Pressure suits, of course. They'd fill the X-cage with a Mars-style atmosphere and wear pressure suits themselves. No telling if refugees would bring enough oxygen. They'd want Gorky's special filter helmets for breathing Mars atmosphere.

“Lines. Hanny, you'll be maneuvering near sixty refugees in vacuum and free fall,” Miya said. “You'll need stickstrips and fix-points and lines. I'll get those from Space Bureau, Wilt. Give me a man and a floater cart.”

Bottled water. Medical equipment: what kind of accidents were likely to hurt or kill Martians during a rescue? Svetz listened, nodded, advised.

Then he asked Wilt about baths and showers.

Bath? Well, that was awkward. Gorky wanted the large X-cage off in five hours. Everyone was busy, so the bath was available, yes. The problem (Wilt was explaining as Miya returned) was in finding enough people to take a bath!

“Zeera won't like the conditions,” Svetz told Miya.

“She'll be pissed if we don't invite her. Won't she?”

“Sure.”

The lock on the bathroom was a guard

program. They typed in an appointment, then went looking for a quorum.

They found Zeera and Ra Chen on cots in the sleep area. Ra Chen was snoring like a machine with a bad bearing. Zeera was awake. 'Too hungry to sleep anymore,' she said. "What's up?"

Svetz tried to explain what was going on. "The guard program isn't corruptible, or else I don't know the codes. There's a big double door. It won't let in less than eight or more than twelve. One tub, lots of towels, and a sonic for cleaning those."

"They're short of water," Zeera said.

"We noticed. Are you in?"

"I'm in." Zeera sounded tired. "I'd

bathe with Elephant. I'd bathe with Gila Monster. Futz, why not, he could dry me with his breath. So I guess I'll bathe with you two."

Hillary Weng-Fa and Zat Forsman were loose, or else they took pity on three bewildered time travelers, and they brought three strangers. Eight was enough.

The bathroom was roomy. The tub was luxurious, finely carved and economically shaped, equipped with water jets and bubbles. But it wasn't big.

Eight bathers sudsed each other before they took turns entering the tub. They rinsed each other, dried each other, and drifted into communal sex so easily that Svetz never had a chance to be

startled.

Water was to be celebrated.

He was deeply involved with Hillary and trying to think of a polite way to break loose until he saw Miya with Zat. That was a relief of sorts. Sometime during all this he looked at Zeera- up near the ceiling where the sauna heating was, laughing down at them, naked as he had never seen her, dark and gaunt as a wraith.

Zeera called down, “How important is Horse?”

Horse? “Why?”

“Svetz, even your weird fantasy theories don't claim that our unique horned horse needs a virgin attendant in 1109 AE.”

She'd been reading the old stories.
“You're right. So?”

She said, “Mart!”

Mart Torgeson, a total stranger until today, was lolling in the tub. He looked up brightly. “Change your mind? Azeera, I've been chasing you so long-”

Azeera?

“And now you think it's going to be easy?” Zeera slid into the tiny tub and whispered in his ear, and he jumped. And accepted the challenge.

Svetz watched in awe and unease. Zeera must think that the end of the world is coming.

Most of them needed the tub again after all that activity. The water was black. They'd certainly burned up an

hour and a half when a tech poked his head in and called, "If you're a time traveler, you're wanted."

They'd finished loading and programming the large X-cage. Willy Gorky and Wilt Miller waited. Willy said, "We've tagged Wilt to go back for the refugees on the tree, but we also want to send someone who's talked to a Martian. Zeera, you got some sleep, didn't you? If you're up to it--"

Zeera breezed past Svetz and Miya. "I'm in, Boss."

"Look it over. All of you. We may have missed something. We launch in ten minutes."

Wilt Miller, with his ruddy skin, might pass for a red Martian if he'd dyed

his hair black and had cosmetic surgery to soften his jaw. Maybe that was why the Heads had chosen him.

Ra Chen came to join them.

Zeera and Wilt climbed into pressure suits and entered. They were lost inside the volume of the large X-cage. It would run on remote control from the small cage, but there was also a chair and horseshoe of controls. Zeera took the chair. Wilt set some fixpoints and anchored himself to them. Svetz closed the hatch on them and stepped back.

The sphere faded in an instant. The extension arm behind it faded away in a direction no human eye could follow. Now only instruments could record its progress toward the past.

Svetz was inclined to monitor.

He was thwarted. Ra Chen said, “Drown me! Willy, where are you going to put them?”

“Sir, I have men working on a cage in the Bestiary.”

“Ah. Good. Willy, I'll take care of the mission here. Time is my turf, Mars is yours. Take Svetz and Miya along and look over that cage! Someone might have missed something.”

They walked toward the entrance with Willy Gorky. “Hang on a second,” Svetz said, and looked for the water dispenser.

There were the tables, left of the Armory, but where-? “Willy, I'm lost. Where's the water dispenser?”

“The what? Come on, Svet/, you're

not any thirstier than anyone else.”

Chapter 38.

Once there must have been a thousand kinds of cactus. Svetz hadn't known that, but he couldn't doubt it while surrounded by scores of surviving varieties. It bothered them that many of them seemed to be dying.

Miya whispered, “Hanny, the chairs and tables were there, but there's nothing between the Armory door and the Pit. What happened to the drinks dispenser?”

“I thought it was over. I thought we could adapt. The world. Our species,” Svetz said. “All we had to do was wait.”

“The drinks dispenser?”

Willy had left them behind. He waited

impatiently at the bridge that led through the World Globe. He didn't look that strong, that energetic, until Svetz looked at Miya and then down at himself. The flesh hung on their bones. Their stomachs bulged with starvation.

He asked, "Willy, what happened to Victor's brother?"

"Waldemar? I liked him, Svetz. I tried to teach him about the stars. He died in childhood," Willy said, and coughed. "Lung troubles." And Willy led them into the World Globe.

Miya stopped in the middle. Svetz stopped too. There was no need to speak.

Again it was as if the skin of a world had been inverted, and they stood at the

center. But this world was not their own. The oceans were small blue patches on a world gone mostly red. The continental shelves were dry land. A blue worm wriggled the length of the valley that had been the Mediterranean Sea.

Willy turned back. Misunderstanding, he pointed out a ridge that stood up from what had been the seabed of the Atlantic Ocean. "Are you familiar with Atlantis? Some saltland farmers found the ruins in Waldemar Four's time. On your time line--"

"We didn't have technology to look that deep," Miya told him.

"Well, come on." Willy forged ahead.

Miya lingered. "Hanny, did you see? They've got canals."

Blue threads wriggled over the Earth. The largest followed the old rivers and the beds of the Baltic, Black, Caspian, and Red Seas, and the sites of the Great Lakes; but rectilinear networks branched out from tiny cubistic pumping stations on the old natural curves. Cities crowded around the remaining seas, hundreds of clicks below what had been coastlines.

Antarctica was a diminished ice cap on a greatly expanded continent. Highways wide enough to see from orbit led across dry seabeds to Australia, Africa, South America. Svetz pictured trucks as big as tanker ships laden with freshwater ice....

They caught up to Willy Gorky near

Whale's cage, which was more properly an aquarium. He shared it with crabs and a seaweed forest. Whale held Svetz's eye. You made us extinct. Now it's your turn.

“This is why we have to guard the Bestiary,” Gorky told them. “Every so often someone tries to break in. All that water! They must think it's fresh, of course, but there's enough fresh water in the Bestiary to ... to ...”

Svetz turned around when Willy trailed off. Willy was on the ground. He looked dead.

Svetz said, “These locks are beyond me. Miya-” Miya looked dead too, an angry and desperate ghost. They must all be seconds from death. “Willy? Sir! Do

you know a code to get us into the cages?"

Willy stirred. "Cages. Why?"

"We need water!" / "Ra Chen told me some of the codes. Which cage?"

Svetz looked about him. The door to Whale's cage was up a stairway. He didn't want salt water anyway. Snake's head lifted from his coils ... Horse came to his feet, horn poised for murder... Rabbit seemed to be hiding, but Owl, housed in the same cage, watched from an artificial tree branch. Dog- "Dog."

"Woof. State your name first" Willy's head flopped back.

They picked up Willy, one under each shoulder. Willy didn't weigh much.

Dogs crowded around the door,

waiting eagerly to greet them, panting, laughing. They were of various sizes, colors, and breed mixtures. Miya shied back a bit, but Svetz felt no fear. He said, "Hanville Svetz. Woof!"

The double door unlocked and they went in. Three dogs swarmed him, and one was Wrona. Another was sniffing Miya, unsure. They walked Willy inside and set him down.

The air smelled wet. You could taste it on your skin: wet. A big dish of water stood half full and open to the air.

They scooped water with their hands until their thirst was quieted. Then they dribbled water into Willy's mouth, into his hair, into the collar of his shirt. He smiled and opened his eyes.

Sitting with a dog under each arm, Svetz asked, "Willy, have you any idea what Wrona is doing in here?"

"Dogs need water." Willy's voice was a bit slurred. "She has to be protected. What did you think, we'd send her home with you?"

Svetz scratched Wrona's ears. "We'll fix it," he said. She looked up at him in perfect confidence. "Willy, we're dying. Right?"

"We're holding on," Willy said. "The Antarctic ice isn't gone yet."

"But we changed the past, Willy. The change shock is still coming down the line. I thought fifteen hundred years of intense natural selection would have shaped us for the dryness, but it isn't

going to be like that. When the time line adjusts, the human race will have been extinct for hundreds of years.”

“Svetz... what did you do?”

“We brought the World Tree to Earth,” he said. “It must have sucked up most of the water on Mars already. We busted it loose from Mars. It left a sapling behind in orbit. The sapling must have finished draining Mars. Meanwhile the Hangtree came to Earth and drained us.”

“Wouldn't it have come anyway?”

Svetz was jolted. “Miya? Is he right?”

“I don't know.” Miya was starting to cry. “Of course that's what a Hangtree would want, but... it wasn't finished. Didn't have all the water. On our time

line the Hangtree must have waited too long at Mars. Something happened.”

“What?”

“Oh... Phobos? I wondered if the Hangtree's trunk could oscillate in a harmonic rhythm with the inner moon's orbit Every time the moon conies past, the trunk would be off to one side. Hanny, it would be easy to disturb such a system. Close approach from an asteroid, or a solar flare pushing on the mirror sails, or just chaos in action. Leaving Mars, it would have to be dodging both moons. But I'm guessing, Hanny. Another possibility-”

“Miya, Svetz,” Willy Gorky said, “the question is what to do now.”

“Chop down the tree,” Svetz said.

“That?” Willy gestured southeast. Though the World Tree couldn't be seen from Dog's cage, it was there in their minds. To think of destroying such a thing was ludicrous. In Norse myth, Yggdrasil wasn't a part of the Earth. The world of mortals was a part of Yggdrasil.

“Earlier.” Stubbornly Svetz went on. “When it first linked up, the trailing root wasn't any thicker than my finger. If only we had a time machinel”

Miya said, “Hanny, if you chop through the link, the tree's still in geosynch orbit. It dropped lots of anchor groves. It'll just link up again.”

Svetz's mind began to run in little panicky circles. When tkt Tree reached

Earth it was already too late. We have to chop it before then, at Mars. Wait now, we did that. It came here. We can't get to Mars anyway, an X-cage won't reach that far, the Minimax can't lift from Earth.... Wrona's fur under his fingers, the perfect trust in her eyes, were anchors to reality; but whatever reality might be, he was losing it.

Willy said, "Chop off the top?"

Miya said, "Ah."

"Right, then. Chop it with what?"

Svetz said, "Wait. Would that work?"

His mental mapping caught up and he said, "Of course it would work, you just have to chop off enough. Yes!"

"Let's have a look in the Armory," Miya suggested.

That got a quizzical look from Gorky, but Svetz felt he had his balance back. He said, "Of course all of this has to be done at a dead run. What's out there is not much different from current Mars. Too dry for humans."

Wrona held off the other dogs somehow while they drank deeply and splashed their collars and shirts and hair. The dogs didn't much like intruders at their water dish.

Willy asked, "What about the Martians on the tree?"

They looked at each other gravely. When nobody else spoke, Svetz said, "I can't see a way to save them."

Miya nodded. Willy Gorky stood up, a little wobbly, and said. "The small X-

cage is set and ready to go. Are we? All right, go.”

Somebody had brought in a big lifter platform. Good idea- Martians wouldn't be able to walk-but it was unattended. Ra Chen and three techs were all in the Guide Pit One of the techs was on her back with her knees and head propped up.

Willy told the Armory door, “Willy Gorky, come to the arms of Victor Four.”

A massive door opened. Svetz looked at what was inside the Armory. It was evidently a kinder, gentler age- Willy said, “I don't know what you thought you'd find, Miya. We're ready for riots, and of course we're ready for big

animals, but not a major deconstruction project.”

-It was also an age in which rioters might invade the Secretary-General's Garden and Bestiary in search of water. The weapons locker held mostly sonic stunners: thirty or more handguns and six two-handed sonic crowd sprayers of a design Svetz had never seen. They looked to be heavily shielded against backstun.

The net sprayer was a bulky two-handed thing. It would tangle an ostrich or an elephant, or hundreds of rioters.

There was Space Bureau pressure suit armor for half a dozen. It too might double as riot gear.

There was nothing like the blasters

they'd had aboard the Minim.

Svetz was used to a needle rifle. He took one. Miya and Gorky looked at him oddly, so he put it back.

And now he was right out of ideas.

“Incoming,” Ra Chen called.

Routine announcement, but he wanted help. Svetz saw why. Another tech had passed out, leaving only Hillary Weng-Fa and Ra Chen himself.

Svetz slid into the Pit.

Nothing in the displays looked urgent. The large X-cage was being reeled in, passing minus two hundred AE, minus eighty, plus ten... Out on the floor, the extension arm faded a meter from the wall. At first glance you might mistake the end for a hologram washed out by

sunlight. Keep looking and your eyes would try to... try to follow... Through long practice Svetz wrenched his eyes away.

Plus two ten. Three hundred.

Willy and Miya were at the Pit. Miya was holding a hand stunner. She said, "Hanny, we don't have anything to cut a Hangtree with."

"I know."

"Now what?"

Six hundred. Seven sixty.

"Man the lifter, Miya. We don't have anyone else. One thing at a time. That's a little fast, Hillary."

Eight thirty. Eight ninety.

'Too fast, Hillary!'

'Tes, but what do I do?'

Svetz showed her. The numbers slowed. Telltales showed that the excess heat was being dealt with. Going... where? Not the pond; that was gone. A radiator fin somewhere?

Ten ninety. Eleven hundred.

“Incoming.”

Eleven five- The extension arm was blocked by a ghost, then a solid transparent shell.

A variety of Martians had been plated around the shell. They wore pressure suits as various as their shapes. In the instant the X-cage came home, they all fell toward the Earth's center. Now they were thrashing and trying to pick themselves up where gravity had dropped them. Svetz looked for Wilt and

Zeera.

A froglike entity with a pointed face occupied the control chair. Svetz found Zeera and Wilt in a cluster of red Martians. Their hands-futz, they were prisoners! And what was that pointing down the axis of the X-cage?

Its size and placement made it hard to see-too big and too foreshortened-but only for that first instant. Under the big equipment bin in the ceiling, a tube of crystal and copper and silver ran nearly the length of the large X-cage. The back end was welded in place. It was a heat ray cannon longer than Whale, and the lens looked straight into the Guide Pit.

Svetz jumped over the wall and ran. They'd left the Armory open. Svetz

snatched up a two-handed sonic and ran at the X-cage. He was out of the line of fire, but next to the great glass door, as the doors began to open like flower petals.

All the four- and six-limbed martian shapes were thrashing around trying to get to their feet, or trying to wave blades or long-barreled guns at the door. Bulge-eyed octopoids attended what must be the firing mechanism, which was a sort of cockpit. Svetz had no idea whether a heat ray would fire through the X-cage's door or wall, or reflect. He guessed that they didn't either. They waited.

Miya was on the other side of the opening door, her sonic handgun ready.

A green giant lurched into the bug-

eyed cannoneers and sent them sprawling in a tangle of rubber limbs.

Miya forced her hand inside the doors and began spraying sound. Svetz had to wait. One full second, and then he could poke in both arms and the crowd sprayer. He sprayed everything in the way, aiming for the back of the cannon, where the controls seemed to be, and where another green giant was wrestling with the first.

The first must be Thaxir, but it didn't matter. The crowd sprayer was not selective. He sprayed them both, and the two Soft-finger octopoids who wriggled free of the wrestlers and were trying to reach the trigger cockpit. He was inside now, and he waded toward that, holding

his aim on the cockpit. Men hands and blades kept popping up in his face, but nothing around the cannon controls was moving anymore, and now he was there.

Zeera and Wilt had wriggled away from their captors. He fired bursts around them, and around Miya, and nothing else seemed to be moving in the cageful of Martians.

His arms were numb.

These Martians were still conscious, Svetz remembered. They just couldn't move, or answer, so he was talking to himself as he inspected the great weapon.

“All right, now we have a heat ray. How the futz does it work? Cockpit and big attitude jets. Built for free fall. More

plasma weapon than laser. Maybe it'll cut the tree. Maybe. Futz, I think we can save the Martians! Willy-"

Ra Chen and Willy Gorky were in the X-cage. Willy was pulling a red Martian woman out. He'd set the edge of the floater against the doorway. Svetz cried, "Willy, stop!"

"What?"

"Put her back. We can save them. Just leave the Martians where they are."

"But we've got them-"

"And we want to keep them. We didn't send the large X-cage back far enough in time. Look, Willy, we're going to chop down the tree before they were rescued. The only way to keep them rescued is to take them back with us,

because this time line is going to disappear.”

Willy looked a bit sick, but he said, “Got it.”

“Leave them In the large X-cage. We have to take that back anyway, because there's no easy way to dismount the cannon-”

Ra Chen said, “If s set for the wrong time. Sixteen AE.”

“Well have to reset it”

“That'll take hours. Svetz, I really don't think we have that long.”

“I don't either. And they don't.”
Waving into the X-cage. Earth gravity killed Softfingers quick.

Ra Chen said, “Advise me then, drown you! Think?”

The silence was a rustling of Martians. Sonic weapons set muscles twitching at random.

“The small cage is set for the right time,” Miya said, “isn't it?”

“Yes?”

“And you can set the large X-cage to meet the small one, can't you, Hanny? It's how you got Whale. Then-”

“Stet, got it, thanks.” Ra Chen was on it. “Hillary, you and I can run the X-cages. Zeera, you take the small extension cage back. It's set to drop out where the Minim's FFD disappeared around minus three fifty AE. That's where your team went into Fast Forward and came here. Then-”

Hillary Weng-Fa said, “Wait now,

Boss. You're going to kill everyone in the universe?"

"You're dying now," Svetz told her. "When we've done our job you'll be restored to health."

"But it won't be me!"

"In a few hours it won't be anyone, Hillary."

"I'll take my chances! You think you'll save yourself?"

"Hillary."

"Boss?"

"Most people will be in better shape after we've done this. Millions of people won't be dead anymore. We're all near dead, even if you've got too much courage to admit it."

Nice phrasing, but Hillary Weng-Fa

wasn't showing courage. "It won't be mel I, I can't help you do this."

"No, of course not. Go home, Hillary. Zeera, you and me. We'll be running two X-cages. We can send the large X-cage back to meet the small X-cage on manual, soon as it's in place. Are you up to it?"

"Certainly."

Hillary cried, "Zeera, you'll disappear along with the rest of this!"

"Willy, you'll take the small X-cage back," Ra Chen continued. "It's set for the right timespace. There are only two things you need to do." He stepped into the small X-cage and pulled Willy after him. "The chair swivels. This whole display on the left is remote controls for

the large extension cage. On arrival, you punch this. It summons the large X-cage. If we didn't need someone to do that we'd send it empty. Then pull this in the middle. That's the go-home. I can't see any way you can get in trouble, and it's a futz of a ride.”

“I'm in,” Willy said.

“Now, Willy.”

Willy climbed into the small X-cage. Zeera and Ra Chen took their places in the Pit. Svetz joined them, but he only watched. They were both better at this than he was. Willy watched them all with a look of wary anticipation.

The small X-cage disappeared. The extension arm led off in a direction the eye could not follow.

Ra Chen said, "Hillary, are you still here? Go home. Svetz, Miya, you take the large X-cage. What have I forgotten?"

Svetz said, "Thaxir. Get her apart from the rest before they ball up."

Martians had fallen all around the control chair. Miya found a green giant and swore that she was Thaxir. It took three of them to pull her up the slope of the wall, away from the others.

"What else?"

Miya said, "Pressure suits! Ra Chen, I think that's a plasma weapon. We'll examine it on the way, but well have to open the cage to use it. And question some Martians."

Zeera said, 'Translators. The net gun

and something to cut nets. More sonics. Net the trigger on the cannon and net the Martians and keep them apart, and spray a net over Thaxir. You want to keep them stunned, and you don't want them wriggling loose, and you don't want them to open the door or fire the cannon.” Ra Chen rubbed his temples. “Sounds like a lot Anything else?”

Miya lifted her sonic handgun and fired. Hillary, reaching into the Armory door, dropped like loose bones.

“That’s all I can think of,” Miya said.

“Get that stuff and get aboard.”

Chapter 39.

Svetz took the control chair. Miya tethered herself with the lines and fixpoints Zeera had abandoned. They

watched Ra Chen and Zeera in the Guide Pit until all the colors went to chaos, and gravity shifted to the center of the shell.

A rustling of stunned Martians followed them into the past. Svetz and Miya hung head down. Svetz had done this before, and it didn't seem to bother Miya.

The Martians had all settled into a ball. Miya sprayed a net over them and tethered it to the curve that had been the ceiling. Thaxir hung in a net near her. Miya had already sprayed a fine net over the cannon's firing cockpit.

Every Martian was wearing some kind of pressure envelope. Softfinger, green giant and red Martian pressure suits were no surprise: Svetz had seen

them before. The big crabs with their ogre-human faces, and their mock human mounts, wore separate pressure envelopes with sockets to join them. Inflated bubbles with attached bottles held red Martian children, spindly six-limbed dark green children as tall as a man, grinning pointy-faced frogs festooned with tools, tiny ogre crabs and infant crab-mounts. Other such bubbles held animals and plants in what looked like terrariums. Thaxir hadn't mentioned that.

The child-bubbles remained closed; but all the adults had opened their helmets or zippers. Earth's post-Industrial air couldn't be good for them, despite the high carbon dioxide content

Svetz asked, "Shall we switch to martian air?"

"I don't want to close my helmet. Did you bring-?"

Svetz held up a pair of clear bags: filter helmets labeled for Mars.

"They act like they're running out of air," he said. "They took enough to board the X-cage and enough more for the children. They must think we still have pre-Industrial air. Or-"

"What?"

"Or they're running out. What if the tree stopped giving them oxygen?"

Miya asked, "Why would it do that?"

"Parasite control? We can ask."

They donned filter helmets. Svetz adjusted the air monitors.

Miya spoke to the elderly green giant
“Is that why you called us, Thaxir?”

Thaxir couldn't answer, assuming this was Thaxir. The green of her shell was yellowed. The plates of her face bore a wonderful array of fine, delicate carvings, and an old crack that Svetz's blaster handle might have put there ages ago. She hung, twitching a bit.

Svetz said, “I wish I really knew how sonics affect a Martian.”

“I'm tired,” Miya said. “You?”

“Wiped.”

“From the moment we hit the target date, we have to keep going for twenty minutes,” Miya said. “That's right, isn't it? Then we can quit We won or we didn't”

“Right”

“Go easy with the sonics. Don't knock them out again. They'll all want to close their helmets when we open that big door.”

She turned back to the green giant. “The Hangtree is killing the Earth. It killed Mars too. We need to chop it down when it's young. I beg you to tell us how this weapon operates.”

Thaxir twitched. Not just a tremor: she was trying to speak, and she was amused.

While they waited, Svetz opened the talker. “Ra Chen? Boss?”

“Problems?”

“Smooth as silk.”

“Then get off now. Call when you're

in place.” Click.

He hadn't realized. The talker was using up Ra Chen's life span, and Zeera's too. They might have only minutes.

If a Martian got too restless, Miya stunned it on low. The species Svetz could recognize were men and women in equal numbers, a good many elders, a handful of older children. They had come as a colony even if their intent was conquest.

Thaxir was stirring. While Svetz monitored the telldata, Miya talked to her, believing she could hear.

Thaxir mumbled slurred martian gibberish. The UN translator adjusted in seconds. It said, “Wake cannon masters.”

“Who?”

“Cannon masters know.” They waited. Presently Thaxir said, “Softfingers made the cannon. Don't put Softfingers to sleep.”

Martians were stirring.

Miya asked, “Which ones?”

“Softfingers all look alike.” Chufchufchuf-a sound that came from Thaxir's sides, her spiracles. Laughter. Then, “Let them all wake.”

The large X-cage moved steadily into the past toward where the small X-cage had popped out. Svetz wasn't needed at the controls. He let himself down on a tether to examine the weapon.

It had to be a weapon, didn't it? Svetz remembered that heat beams from a wok

ship diverged more than a laser, and reflected less. Plasma gun! If they fired it inside the closed X-cage, they'd cremate everything in a moment.

Thaxir had said that twenty Softfingers would come. There might have been that many, but they were a tangled mass of tentacles, indistinguishable even by gender. Twenty awake would ... would what? Try another mutiny?

He brushed a few wakeful Martians with the stunner on low. More and more were waking. Softfingers were stirring too. Svetz cut a hole in the net, pulled a Softfinger out-about his own weight, less than fifty kilograms now-lifted it to the shell and netted it in place. Then

another, and another.

Miya was saying, "If the tree dies, Earth lives. If Earth lives, we can make Mars live again. It might take a long time, but we can. Thaxir, do you have a problem with that?"

"Trust me, Miya?"

"I haven't decided. What did you hope to gain at the Institute?"

"Softfingers outnumbered us. Fools we all were, not to bring more of us. They took our weapons. If they have a plan, they did not tell me. But many joined them. The promise was of a time machine, with a chance to change old mistakes."

The green Martian was ten times Miya's weight, and she was stirring

again. Trust her? Miya had a stunner. So did Svetz.

“Why did you run from us?”

The Martian said, “Long time ago. You and the others told me this much, that your end of time and mine should talk. Told me more, but I believed that much. Then the landing smashed your talker. I knew that my people on the tree could build it again. I could not guess what else we would learn in learning how to do that. I did not know if you would share knowledge.

“I carried out your wish as you told it, but I did it my way. When we are made slave, obligations bind us. But to be slave does not kill our minds. Obligation runs two ways.”

Svetz said, "We don't hold intelligent beings as property at all."

"Is that why you let me run?"

"Yes."

"I wondered. I serve you, Miya, and Svetz and Zeera too. You seek to destroy what destroyed my people's world. The scope of your ambition is a madness that excites my awe. The tree was our home, but you say it will destroy us, and I believe you."

"Thaxir? Why?"

"The sap that runs through the veins of the tree holds dissolved oxygen. We sink pipes. Always we have our air that way, and water and sugar too. Galls grow around the ends of the pipes and close them so that more must be drilled. But

now the tree learns to close the pipes much faster. Faster every year.”

“Can you tell us how to work the cannon?”

“No.” Chufchufchuf.

“Can you tell us which Softfingers are the cannoneers?”

“No. I can tell you some that are not.” Chufchufchuf. “Svetz, one you have chosen is gravid. It makes them clumsy. The cannoneers were not gravid.”

Svetz had netted nine Softfingers in an arc around his control desk. It was heavy exercise. The inertial calendar read 160 AE, with no real accuracy, but the X-cage was halfway thence and nothing had burned out. He lowered the gravid Softfinger back to the net; moved her in,

chose another- 'Too old. No, not the injured one either.'

-Chose another, sprayed the net closed. His captive wrestled with him sluggishly as he moved it into place.

This mode of time travel was much faster than Fast Forward. But Fast Forward would have given them a view! Now ten Softfingers, and Thaxir, wriggled restlessly against a chaotic rainbow.

When would Thaxir ask to be freed?

Miya asked her, "Can you talk to Softfingers?"

"Yes. Miya, I remember how long it took for your device to learn my speech. Best if you let me translate."

"They have their own speech?"

“Yes. But Softfingers will never agree to destroy the tree.”

This sounded suspiciously like the end of all their hopes. Svetz climbed back up to where Miya and Thaxir hung. He asked, “What if we make them slaves?”

“None are made slave except by agreement. Any may die if he will not be slave. Any may be silent if he will not speak to a captor. Any may refuse to act. Some are slaved by degrees. Do this, refrain from that, reveal knowledge, give up a weapon, justify details of living style to a lord's servant, bit by bit until free has become slave. It may take centuries or generations. I have seen it again and again,” old Thaxir said. “Are

you sure none of you are slave?"

Svetz didn't answer, nor did Miya.

"I chose to be your slave. These will not. They will not tell you how to harm the tree."

"We'll have to guess," Svetz said.

"Svetz, will you trust me? Miya?"

"If you have something in mind, see if you can describe it."

Chuf chuf chuf. "I intend a dance of words, too chancy, too variable, too strange to reach through a speaking device into alien minds. If I can make this work, I will make legends, but you must trust me."

"Well trust you," Miya said. "What do you need from us?"

Thaxir said, "Leave your pressure suit

helms thrown back. Move more Softfingers. Do not notice me.”

Leathery bug-eyed octopuses, red-skinned humans, insectoid giants, froggy elves, near-headless humanoids and ogre crabs were all stirring in the net.

Thaxir began talking to the nearest Softfingers.

Miya and Svetz moved down the tethers to the wriggling mass of Martians. Most were conscious, and they wanted to talk. The UN translator knew Red Martian and Green Giant and was learning other speech too, and it tried to translate it all in a babble of white noise. Svetz turned his volume down. “Leave it this way,” he said to Miya.

“We could get away from this-”

“We can hear everything that goes on. I don't know if Thaxir ever noticed that, but I don't think we want the octopoids to. If they know we can listen, Thaxir may have trouble. You trust her? Why?”

Miya shrugged. “We don't have to, really. Let's see what happens. Maybe Thaxir can get some instructions. We still have to guess if they're right, or else guess how to work these funny controls. Either way, do you feel lucky?” She pointed. “That one.”

They extracted a Softfingers. They moved that one and another and netted them.

There was food and water in the storage bin. Not much. They ate ravenously, and talked of the past before

they'd met, and watched the Martians.

Their translators were speaking again. Svetz could barely hear. He chose not to raise the volume. The incomplete translation stuttered.

“-from Earth. Destroyed the sky watch station on Highest Mountain-”

“Horror! We are captive to these-?”

“Think guilt, plan revenge. They have not thought to close their Pressure envelopes.”

“Allies and infants would be left open to the empty. Must they die?”

“Guile. These were shaped by Earth's thick air. Shaped by Mars, we can live longer in the empty. But wait, a word makes them safe.” Thaxir lowered her voice further and spoke a single

emphatic syllable. The translator gave it as, "Close your outer skin or burst like a sandgrape, witless child!"

Miya said, "She told us to leave our suits open. Does she expect to open the door to vacuum?"

"Not without warning, I guess."

"But you can't lock the control board, right, Hanny?"

"What for, when I only moved animals?" Svetz had sometimes wondered. Owl had claws to pull and turn knobs and a beak to punch keys.

The light changed. Gravity changed. Martians wailed and peeped and gibbered as their net sagged toward the floor.

Just as matters were becoming

interesting, they were back among the conquistadors. Twenty minutes to Ragnarok.

Chapter 40.

Three hundred meters northeast of the anchor grove, a Portuguese army was converging on nothing, becoming braver as it became clear that there was no enemy. The shallow sea showed not a trace of the Minim spacecraft that must have disappeared fifteen minutes ago.

Soldiers had finished reloading a cannon and, under the direction of a frantic officer, began inching its aim toward what must have been a puzzling target: a tight cloud of hundreds of human and alien shapes floating high above them, rising out of sight before

anyone could quite be sure it was there.

Svetz said, "Futz!"

"What?"

Svetz's thumb was on the direction vector, pushing hard enough to break it Up, up, up. "We should have had Willy go up the tree in the small X-cage! We could have met it there! He's got twenty hours to play with. We only have twenty minutes. Futz!"

The large X-cage ghosted through a layer of cotton-ball clouds and kept rising. Svetz zoomed his mag specs and found a silver stalk rising straight up from the black head of the clustered anchor trees. He'd follow it up.

The man-shape on the stalk was Jack.

A great yellow-green insectile shape

was climbing up below him.

Svetz was looking almost straight down along the root to the black tuft. He kept raising the magnification on his mag specs. He was tempted to delay, to see the end of it, but he dared not. The X-cage was rising fast, but it wasn't a rocket it wasn't accelerating. The climb up the Hangtree was likely to eat most of their allotted time!

Tiny Jack fled from a yellow-green ogre with tusks and too many limbs. He climbed with hysterical strength in the only possible direction: up. And he had lost. The monster reached from below and plucked him up in two forward limbs.

Jack's knife slashed twice across the

green giant's chest plates. Thaxir ignored it. With exquisite care she turned him around, then transferred Jack to her middle limbs, never losing her grip on the root nor on Jack.

In that position he couldn't reach the monster. He slashed at her pack. Something fell... and then young Thaxir set him against the stalk below her. Jack wrapped himself lovingly around the Hangtree root. Some glittering thing from Thaxir's pack was falling, and Jack's knife fell too.

At maximum zoom Svetz still couldn't see anymore. He called to Thaxir, "What was that?"

Old Thaxir said, "My windstorm-minor, curse that thief! An heirloom I

will never see again.”

“Thaxir, you must have been killing yourself climbing in Earth gravity. What did you think you'd find?”

“I expected that my folk would send the lift down as far as it could go. There, Svetz-”

The Hangtree was swollen to tree trunk size. Suddenly there was a silver rail, and a barred box at the bottom, sixty klicks above the Earth.

“Quite a climb.”

“A record never to be matched. I was years recovering my strength.”

“What if it hadn't been there?”

“It was.”

Altitude: 40,000 klicks. The large X-cage was already above geosynchronous

orbit Svetz was staying alongside the tree, so the X-cage, moving at orbital speed, was back in free fall.

Svetz saw activity of some kind on the trunk as it sped past, but nothing flashed at them, nothing impacted. They were rising fast.

... And Jack was going home with a golden harp, an alien shape of gold set with jewels, that made an alien song. What would they make of that in ancient Portugal? Golden harp and golden eggs and a bag of golden coins. Doubtless the King of Portugal would take it all... kings did that, Svetz thought... unless Jack sailed into some foreign port, England maybe, and sold the loot there.

Would he tell his tale? How could he

not? His companions would know it by heart before they reached port. They might have trouble describing John's absolute terror of a yellow-green four-armed monster with tusks who stands ten feet tall and swings a sword no man can pick up. As the legend spreads it might describe only a simple giant or ogre...

Better phone home!

Svetz activated the talker. "Boss? We are thence."

He heard a soft murmur that might have had words in it.

Creepy. The voice of a quantized, uncertain future. He switched off.

Thaxir spoke Softfinger sounds. The translator said, "See, they bust me." Then she called in green giant speech,

apparently addressing another green giant, “Miya, go and look at the cannon!”

That individual's eyes swiveled, then came back, puzzled.

Svetz said, “You go, Miya. I'd better stay at the controls.”

Miya held Svetz's eyes but asked Thaxir, “What shall I look for?”

“Look like you do not expect help from any Martian!”

The Hangtree had grown broad as a freeway, even in the stretched and slender form that had crossed interplanetary space to Earth. Svetz tried to keep the X-cage near it without crashing into it. Altitude: 60,000 klicks. A trace of gravity had returned, with a vast Earth overhead. The control chair

was inverted.

Miya wedged her head and shoulders into the cannon's cockpit. It was too small for anything human. Svetz was tempted to laugh. She looked very awkward. She pulled and pushed and touched, and if she set something off they'd all be dead. Softfingers and other Martians were paying her considerable attention; two or three Smiths were either shouting instructions or cursing.

The phone rang.

That wasn't the intertemporal talker! It was the remote in the small extension cage. Svetz punched in and said, "Willy?"

"Futz of a ride, yes! Hello, Svetz. Are we still on track?"

“No showstoppers yet. Where are you? And why aren't you on your way home?”

“Svetz, I've getting great pictures. I suppose I'm pacing you, but you're too small, I haven't even glimpsed you. If you can bring this off, I want a record. I want to watch! If you can't... well... there won't be anything to go back to.”

They talked further. Svetz was glad of the company.

At 90,000 klicks the tree had narrowed as much as it was going to, its diameter no more than a city block. Thirty thousand klicks farther out, he could see how the tree swelled into a knob. It looked like... If he could cut into that, would he find an encysted asteroid,

swallowed for ballast?

No telling, ever.

He brought the rising X-cage to a stop. Now he had only about four minutes to play with. "Thaxir," he asked, "do you know how to work the cannon?"

Thaxir said, "Yes. Do you know better than to fire it against a closed door?"

Svetz didn't move. 'Tes. What now?"

"Wait. Are you armed with your sleep-thing?"

He didn't reach or look. "Yes, both of us. Miya, are you tracking this?"

"Ready, Hanny."

Thaxir shouted a single syllable.

It galvanized the Martians. They began screwing down helmets and

zipping zippers and stickstrips on themselves, their elders and children. The translator was saying, "Close your outer skin or burst-" Svetz pulled his own helmet closed and saw Miya do the same. He tapped the icon that would suck away the air in the shell.

A beam of white heat missed his forearm and plunged deep into the controls.

Svetz threw himself backward. A fireball blasted back out of the hole and somehow missed fusing his helmet as it puffed across the diameter of the X-cage. Svetz fired in the direction the beam had come from. Miya was firing too. Their sonics swept the Soft-finger gunman and several others.

Elsewhere, another Softfinger loosed itself at Thaxir with a leap that spun it like a buzz saw. Its spin caressed the net-bound Thaxir, and Svetz held his aim and waited-dared not put Thaxir to sleep!-waited, and fired. The pinwheel octopoid spun away, slack and senseless. A knife spun free.

Thaxir lifted herself free of the slashed net. "If you can still open the door," she said, "do it." She closed her helmet.

The gunman's aim had been precise. The heat beam had put a hole in the left branch of the horseshoe control board. That array controlled air composition and pressure, lights, recorded warnings, and of course, the door.

Thaxir joined Miya at the trigger housing. The translator picked up her speech. “I persuaded some among the Softfingers that if they cut me loose, I could fire the cannon while the door was closed. We would die. The Earth would die. The tree would survive to carry the rest of our races to the stars, if we could change the future and survive the tree itself. In any case they would have their vengeance.”

In the quantum-randomized future, Ra Chen was dead or never born; but his urgency (Advise me, Svetz!) lived on in Svetz's mind. (Think!) “They revealed to me what weapons they still have,” Thaxir said. “A knife to free me, a heat gun to ruin your door lock, both

swallowed in sealed bags-”

“Swallowed?”

‘To be disgorged at need, Miya. I alerted you and trusted your reactions. The rest was up to you.”

There was vacuum inside and out. Martians of every description were shouting at each other in silence. The large X-cage had sucked the air back into its tanks.

Good enough. Svetz touched the remote. “Willy!”

Nothing. He remembered to plug the jack into his suit mike. “Willy!”

“How's it going?”

“Willy, you need to use the remote controls to open the door in the large extension cage. Do it now. Right now.”

“Hanny, nobody showed me how.”

“Don't panic. I've used these myself. Now, right in front of you, you should see...” He talked Willy through it. We are the masters of time...

The door opened like a flower.

More Softfingers had cut themselves free. Svetz shot them with sonics as they moved.

A thread of light burst from the cannon's mouth. It was searing-bright until it impacted the tree four or five clicks away. Then the intensity became intolerable.

Miya and Thaxir seemed to have the cannon under control. A halo of gas and particles surrounded the tree now, illuminating the plasma beam.

The tree tore apart.

The severed end was rising. Sap sprayed into space, boiling and freezing into a vast white plume. Nothing much seemed to be happening to the main body of the tree. 'Turn it off,' Svetz said into his suit mike.

"Hanny, we don't have instructions for that. Thaxir says that wasn't supposed to be needed."

"Well, if you don't turn it off we can't close the door, and then we can't go home, and the energy buildup will blow the Institute off the map, and us too. But we did it. We won. There will be a future."

The beam went off. "Got it," Miya said.

“Willy, are you still on? Close the door for us. Willy, stop filming and close the door on the large X-cage. Willy!”

The door closed. Willy Gorky said, “Patience is an underrated - “ But Svetz pushed the go-home and the voice went away.

Chapter 41.

PHAETHON n. Class. Myth, a son of Helios who borrowed the chariot of the sun for one day and drove it so dangerously close to earth that Zeus struck him down with a thunderbolt to save the world from catching fire.

-Random House Dictionary of the English Language The main dome was crowded to the teeth. Every face showed

triumph ... until they looked into the large X-cage.

Ra Chen barely flinched, but Svetz caught it. A few techs looked bewildered; a few were frightened; some gaped, then laughed. Of sixty or seventy present, half were wearing United Nations Security uniforms, and they showed no emotion at all.

Body language told Svetz what man was the Secretary-General. He and his guards were off to one side, and Ra Chen with him.

The Secretary-General was no bigger than Svetz. The crown of his head was bald. Otherwise he bore thick brown hair, eyebrows and beard. At sight of a crowd of Martians he started forward,

wild with delight.

Security blocked him. Any attack on the SecGen would take Ra Chen too. An attack from the large X-cage would fall upon guards and techs first. The large extension cage had last come here as an act of war, but UN Security didn't know that. They were only being prudent.

And of course everyone was waiting for Svetz to open the door.

The noise the Martians were making died a little. They were fainting in Earth's gravity. Svetz and Miya set about cutting the nets.

The small extension cage faded into view. Svetz saw rage flash in Ra Chen's expression, but he covered by moving briskly to help Willy Gorky out.

Willy delayed for a moment at the controls.

The door unfolded like a great flower. Thank you, Willy! A door big enough to pass Whale allowed a dozen techs to swarm in. They came out carrying Martians.

Ra Chen must have assembled every lifter platform in the UN Research Complex. As quickly as they could, they got the Martians into low gravity, stripping them of weapons where they could. No doubt the Softfingers kept a few swallowed. Svetz and Miya helped, trying to keep species separate, setting infants in bubbles among their own folk. The techs didn't seem to think that was important, but it might be worth Thaxir's

life.

The Secretary-General was bubbling with questions. The guards wouldn't let him near the Martians yet, so he made do with the Heads. Willy Gorky was just a bit diffident with the SecGen and Ra Chen. Ra Chen was cordial and brisk and gave way to both.

My time line, and it's really Waldemar the Eleventh, Svetz, decided, but the World Tree's Willy Gorky. A dominance dance between the two Heads should be fun to watch, given that they each thought they'd lost to the other. Now Willy was pulling heavy golden spheres from a pouch and handing them ceremoniously to the Secretary-General. UN guards intercepted the seeds.

The last of the Martians, a six-generation family of reds, was being floated away. .

Ra Chen eased free of the others. “Excellent work, Svetz! Those seeds will look really good in the Palace. Maybe we can grow a few trees.” Ra Chen's grip closed like iron on Svetz's forearm. “We need to talk.”

“Set guards for Thaxir, Boss,” Svetz murmured, smiling. He was being pulled outside, through the front. “Guard the Martians. They'll kill our source if we just turn them loose in a Vivarium cage. Thaxir's one of the older green-”

“First things first, Svetz. How did you and Willy Gorky change places? And why?”

“What?”

The wonderful, elaborate drinks dispenser was back. Ra Chen pulled him past it and outside.

“We sent you back in the small X-cage. We needed to know if any of the Martians were setting us up for something. Willy Gorky just had to go back and rescue sixty Martians himself. His first trip through time, and nobody had the least idea what these creatures really have in mind. If anything happens to the Head of Sky Domains, we're finished,” Ra Chen said. “And now you're back, but the Head of Sky Domains is in the small X-cage and you're in the big one! Svetz, is this another one of those?”

The reflecting pool was back too.

Svetz said, "Changes in the past. Other time lines. Those, yes, Boss, but let's just deal with the martian refugees first. Then I've got a great story and Willy's got visual aids to back us up."

The severed treetop rose like a comet, spraying a tremendous frosty comet-tail lit by raw sunlight. Long after the treetop itself was out of view, the trail of frost continued to expand.

Gorky had most of the tree in view in a wraparound shot that filled the display wall. Svetz could see it all.

At first the tree seemed unchanged. But its center of mass was below geosynchronous orbit. Left to itself it would have moved in a closer, faster

orbit; but it couldn't. It was anchored. The mass pulled ahead of the rotating Earth, and the Earth pulled back, slowing it, lowering its orbit farther.

The bottom of the tree, the root, was still anchored to the earth more than an hour after Miya and Thaxir had severed the top. 'Hie Tree tilted forward, arcing toward horizontal. Then, deep in the bedrock of Brazil, roots ripped free. The tree pulled away, carrying away a disintegrating black clot of anchor grove.

Now tidal forces began to swing it back to vertical. The lower end dropped until the Hangtree's torn bottom was ripping through the atmosphere, blazing like the sun.

The bottom of the tree was a meteor trailing flame and smoke all around the Earth. Prairies and forests blazed in its wake, a noose of fire circling the planet. Above the atmosphere, Yggdrasil's mass pulled it along. The tree was burning at the bottom as it sank toward the Earth.

“The legend of Phaeton,” Miya breathed.

“No, that happened way earlier,” said Svetz.

“Why, Hanny, don't you believe in time travel?”

Futz.

No wonder the medieval world was afraid of comets. If such a mass had fallen all at once, at or near orbital speed ... well, legends would have told

that tale too.

Gorky, Ra Chen and the Secretary-General engaged in intense discussion within a horseshoe of guards.

They summoned Miya. Talk continued.

A UN guard went for refreshments, not to the ITR dispenwr but to the limousines. They summoned Zeera. Svetz bought and ate a carton of dole yeast, then another.

They summoned Svetz.

He told the tale as if they hadn't heard it twice already. Prompted, he spoke of Martians left behind, the furred High Ones, the big birds who wore tool belts.

The Secretary-General didn't leave until midnight.

Then Svetz dared to eat what had been sitting untouched. He and Miya snatched food they didn't bother to identify, in a scrambling of hands. They fed each other bits of anything interesting, laughing at each other's greed, and belatedly thought to bring Zeera into the circle. But Zeera shied away.

Ra Chen was talking genially to Gorky. "You had your Beanstalk. You had the solar system. Wasn't as useful as you thought, was it, Head?"

"Ra Chen, I still have it. Hillary?-drown me, they've all gone home! I don't blame them." Willy raised his voice. "Who knows how to work the holo projector? I want just that first bit back."

"I can do that," Miya said.

Light blazed fiercely from the World Tree. Fog haloed the heat ray, and then the top of the World Tree ripped free. Thirty thousand clicks of severed end rose at escape velocity. Sap sprayed at the stars- And again. Miya had looped the record. "This is what I meant," Willy Gorky said excitedly, and pointed with his laser. A red dot traced the flow of fluid and steam. "I need to show this to the Martians, all the Martians-"

'Tomorrow, Willy,' Ra Chen said gently.

Willy sagged. This was the World Tree's Willy Gorky, half starved in a starving world, the Willy Gorky whose Bureau of the Sky Domains had been eaten by the Institute for Temporal

Research. In this spacetime he was master, but he was tired.

“Go home,” he said, “find beds. Tomorrow. If only I had a time machine!”

They set the holo projector up in the Vivarium, outside the cage that held five martian civilizations in miniature. Martians watched them, and discussed what they were seeing.

There were sound pickups in the Mars cage, as in all the cages-the sounds an animal made might be of interest-but no speakers. Techs linked speakers to UN translators programmed with what Svetz's translator had learned of Mars. Wilt Miller mounted them inside the Mars cage. Five varieties of Martian

watched them do it.

As soon as they were out, the froglike Martians-the Smiths- swarmed over the devices and took them apart before Gorky could begin speaking.

Willy Gorky waited with amazing patience. They waited with Willy, until Seera lost patience and went four cages down to tend Horse. The rest stayed.

Horse seemed glad of the attention.

In present time, one need not credit a children's story.

But Svetz knew that they had lost the Zeera of the baths, the Zeera who turned a conquistador into gold, that Zeera who had stayed with that Ra Chen in another time line so that they could destroy it. That Zeera would not be petting Horse.

When the Smiths had reassembled the translators, Willy Gorky told them, “I can restore your planet.”

No Martian spoke. Svetz’s eye found Thaxir among the green giants. He was relieved: she sat dignified and straight among her kin.

Willy said, “What I need from you is transportation. I know you didn't bring any kind of spacecraft, but you know things. I want to know how your work ships work. I need to know how to make a gas lighter than nothing. Anything that helps me reach the planets is worth having.

“Think about it. Tonight I will show you how.”

Daylight would have washed out

Willy Gorky's hologram recordings. They had to wait for night Zeera still had seeds: heavy golden spheres hardened against reentry. It took jeweler's equipment to open them. Inside they were built like pomes. The laboratory's first attempt at a DNA scan failed. It must be some other genetic molecule that reproduced a Beanstalk anchor tree. They'd find it.

Willy worked with the Bureau of the Sky Domains' astronomers. They knew what to look for now. The world's telescopes were turned on Europa. Data began flowing back.

The Vivarium, nightfall: The severed ends of the World Tree came apart, trailing oceans of water in a wide frosty

comet tail. The blood of the tree sprayed across the sky.

Willy Gorky spoke for the translators in the Martians' housing. "It goes on and on. Gigatons of sap, mostly water infused with oxygen and some interesting nutrients-I zapped it with a laser to get a spectroanalysis-"

An elderly Smith had come forward. "Our world's water," he said. "Other species stayed to share the fate of our dying world. The tree was our destiny."

Willy didn't miss a beat. "Our fate too, but we sidestepped. Your world's water, yes. Now I'll show you how to get it back."

And he showed them.

A sapling left at Mars fifteen hundred

years ago had sucked away that world's remaining life. What it sensed of its parent's fate was unknowable. How do trees communicate? But on this time line, the Hangtree had been chopped down and killed at Earth.

When its sapling child had as much water as Mars had to give, it had moved, still feeble, outward.

The sapling was at Europa. Given that the ancient Mariner probe had found no Hangtree at Mars, it must have been at Europa for at least a thousand years.

In the holo view it was a mere silver thread, as thin as imagination, but it was long. Its center of mass stood well out from Europa, in the stable L2 point made by Europa and Jupiter.

“Did you learn anything about guiding the Hangtree?” Willy looked hopefully up at the rows of alien faces. “Europa is a water ocean under a shell of ice. That thing is sucking it up. All we need to do is guide it back to Mars. Then chop away the root and bleed its veins dry, let the sap drain into the old canals and ocean beds. Oceans of water. Sugar and nutrients for fertilizer. You'll have a world again.”

Willy's voice rang. “But we can't get there from here. Earth's gravity is greater, our space program is a pitiable thing, our rockets can barely lift themselves. But with those and your antigravity dirigibles or your wok ships to lift them free of Earth's gravity, we

can get there. We can get anywhere.

“We'll make Mars live again. Will you help me?”

He had them. Without being able to read alien faces, Svetz still knew: he had them.

“It's not what I really wanted,” Willy C.orky admitted later. “It's a thousand years too late. I wanted to take the planets while the Earth was still rich.”

Ka Chen had formed his attitude long ago. Thou shall not change the past. Not by accident, not deliberately. Disaster and chaos will result.

He said, “Willy, you'd have roughly ten productive years if you marooned yourself in the twentieth century. No conspicuous technology means no

modern medicine and no UN translators. We could train you in their language, but you'll still have an accent nobody can define-”

“Like Werner Von Braun!” Willy said.

“Whatever. And now you think you can talk an insular and defensive agency of an ancient government into doing your will? And still compete with any other branch that might want their funding?”

Willy Gorky didn't answer.

“Willy, it's just a fantasy.”

“I know that, Ra Chen. We'll still have the stars. The past is dead. I'll build from here. From now.”

THE REFERENCE DIRECTOR SPEAKS: The humanoids and green

giants and their cultures, guns and swords and negative-gravity dirigibles, all derive from Edgar Rice Burroughs, except for the houses and stoves, which belong to Ray Bradbury, and those slender towers that probably belong to Robert Heinlein more than anyone. The crabs, and the headless near-humanoid servants that carry them, are also from Burroughs.

Schiaparelli and Lowell and a host of other astronomers of the early twentieth century saw and described the canals.

The flightless bird (Tweel) is from Stanley Weinbaum's "A Martian Odyssey." So is the pyramid builder.

Of the C. S. Lewis Martians, Fishers and High Folk (observers, called High

Folk because they live on the heights, turf nobody else wants) and Smiths, only the Smiths left Mars for the tree. They liked the challenge. Yellow-faced, hairless, pointed, shabby-looking, built like a frog.

Lewis' eldils are missing, and so are Heinlein's Martians and many others, because they were more powerful than the author.

The sailcar came from Flash Gordon Sunday comics.

The Hangtree or Beanstalk, in its earliest form, was the creation of a schoolteacher who served the Czar. A host of fine minds have elaborated the original concept of an orbital tether.

The tentacled astronomers derive

(loosely) from H. G. Wells, *The War of the Worlds*. One appeared as an astronomer in “Old Faithful,” by Gallun. Their lens-shaped craft were a familiar sight over the Midwest in the 1950s.

The Tanker module-which carries a nuclear reactor and six tonnes of liquid hydrogen, to make ninety-six tonnes of methane and liquid oxygen from the martian atmosphere, was evolved from plans outlined in *Mars Direct*, by Robert Zubrin.

Ole Romer, Danish astronomer, was brought to France by Christiaan Huygens. He invented the transit instrument. He measured the speed of light using eclipses of Jupiter and the timing of Jovian lunar orbits. On the

Hangtree time line, he'd have had a telescope and an excellent view of Yggdrasil.

SVETZ'S TIME ONE The first story of Svetz of the ITR is set in +1100 Atomic Era (AE) and -750 AE. Horse was intended for the SecGen's twenty-eighth birthday.

The picture book of animals dates, from 10 AE = 1955.

1108 AE June: death of the Secretary-General, Waldemar the Tenth.

+ 1108 AE November: back in time to -550 AE - +1395 AD: missiles to Mars carrying probes. Interrupt takes them to -545 AE: retrieve data, return to +1108 AE November. Process data. First sight of the Mars Beanstalk. Mount the second

expedition to -545AE= + 1400 AD: send new orders to the Mars probes. Interrupt takes the X-cage to -543AE=+1402 AD: Collect the results. Return to + 1108 AE November. Involve the SecGen. Mount third expedition.

-543 AE= + 1402 AD: the rescue aspect is abandoned in the search for skyhook tree seeds.

Ten months pass in the present, and the Coronation takes place without announcements regarding Mars, while Minim spacecraft and support systems are prepared and Zeera is trained as pilot. Subsequent talker contact is with + 1109 AE September.

-541 AE=+1404 AD: arrival at Mars using Fast Forward. Exploration of Mars

and the Beanstalk/ Hangtree ends with the Minim moored to the Mars Beanstalk in flight. Engage Fast Forward...

-375 AE=+1570 AD: the Mars Beanstalk settles into Earth orbit. The Minim lands in northern Brazil.

-375 to -374 AE: Svetz and company witness the Portuguese encroachment in jumps, using the FFD. Everything subsequent is seen in longer jumps.

-48 AE = +1897 AD: Svetz hits the interrupt because something massive buzzes him in the X-cage. He's picked up some serious energy discharges: pods making hard landings, dropping from the tree: the H. G. Wells invasion.

~+10 AE = ~ + 1955 AD: Softfinger ships over the American Midwest.

+1109 AE October: HOME.
Successful mission. But the tree is on the
horizon, grown huge. Everybody is
getting very thirsty, very desiccated.
RETURN TO -374 AE=+1572 AD:
Chop down the tree. Brave the havoc
and go home to +1109 AE.