

Mars was empty before we came. That's not to say that nothing had ever happened. The planet had accreted, melted, roiled and cooled, leaving a surface scarred by enormous geological features: craters, canyons, volcanoes. But all of that happened in mineral unconsciousness, and unobserved. There were no witnesses-except for us, looking from the planet next door, and that only in the last moment of its long history. We are all the consciousness that Mars has ever had.

Now everybody knows the history of Mars in the human mind: how for all the generations of prehistory it was one of the chief lights in the sky, because of its redness and fluctuating intensity, and the way it stalled in its wandering course through the stars, and sometimes even reversed direction. It seemed to be saying something with all that. So perhaps it is not surprising that all the oldest names for Mars have a peculiar weight on the tongue-Nirgal, Mangala, Auqakuh, Harmakhis- they sound as if they were even older than the ancient languages we find them in, as if they were fossil words from the Ice Age or before. Yes, for thou sands of years Mars was a sacred power in human affairs; and its color made it a dangerous power, representing blood, anger, war and the heart.

Then the first telescopes gave us a closer look, and we saw the little orange disk, with its white poles and dark patches spreading and shrinking as the long seasons passed. No improvement in the technology of the telescope ever gave us much more than that; but the best Earthbound images gave Lowell enough blurs to inspire a story, the story we all know, of a dying world and a heroic people, desperately building canals to hold off the final deadly encroachment of the desert.

It was a great story. But then Mariner and Viking sent back their photos, and everything changed. Our knowledge of Mars expanded by magnitudes, we literally knew millions of times more about this planet than we had before. And there before us flew a new world, a world unsuspected.

It seemed, however, to be a world without life. People searched for signs of past or present Martian life, anything from microbes to the doomed canal-builders, or even alien visitors. As you know, no evidence for any of

". . . And so we came here. But what they didn't realize was that by the time we got to Mars, we would be so changed by the voyage out that nothing we had been told to do mattered anymore. It wasn't like submarining or settling the Wild West-it was an entirely new experience, and as the flight of the Ares went on, the Earth finally became so distant that it was nothing but a blue star among all the others, its voices so delayed that they seemed to come from a previous century. We were on our own; and so we became fundamentally different beings."

All lies, Frank Chalmers thought irritably. He was sitting in a row of dignitaries, watching his old friend John Boone give the usual Boone Inspirational Address. It made Chalmers weary. The truth was, the trip to Mars had been the functional equivalent of a long train ride. Not only had they not become fundamentally different beings, they had actually become more like themselves than ever, stripped of habits until they were left with nothing but the naked raw material of their selves. But John stood up there waving a forefinger at the crowd, saying "We came here to make something new, and when we arrived our earthly differences fell away, irrelevant in this new world!" Yes, he meant it all literally. His vision of Mars was a lens that distorted everything he saw, a kind of religion.

Chalmers stopped listening and let his gaze wander over the new city. They were going to call it Nicosia. It was the first town of any size to be built free-standing on the martian surface; all the buildings were set inside what was in effect an immense clear tent, supported by a nearly invisible frame, and placed on the rise of Tharsis, west of Noctis Labyrinthus. This location gave it a tremendous view, with a distant western horizon punctuated by the broad peak of Pavonis Mons. For the Mars veterans in the crowd it was giddy stuff: they were on the surface, they were out of the trenches and mesas and craters, they could see forever! Hurrah!

A laugh from the audience drew Frank's attention back to his old friend. John Boone had a slightly hoarse voice, and a friendly Midwestern accent,

place," said John, hearing a frozen ball of oxidized rock on which they were exposed to about fifteen rem a year; "And with our work," John continued, "we are carving out a new social order and the next step in the human story"-i.e. the latest variant in primate dominance dynamics.

John finished with this flourish, and there was, of course, a huge roar of applause. Maya Toitovna then went to the podium to introduce Chalmers. Frank gave her a private look which meant he was in no mood for any of her jokes; she saw it and said, "Our next speaker has been the fuel in our little rocket ship," which somehow got a laugh. "His vision and energy are what got us to Mars in the first place, so save any complaints you may have for our next speaker, my old friend Frank Chalmers."

At the podium he found himself surprised by how big the town appeared. It covered a long triangle, and they were gathered at its highest point, a park occupying the western apex. Seven paths rayed down through the park to become wide, tree-lined, grassy boulevards. Between the boulevards stood low trapezoidal buildings, each faced with polished stone of a different color. The size and architecture of the buildings gave things a faintly Parisian look, Paris as seen by a drunk Fauvist in spring, sidewalk cafés and all. Four or five kilometers downslope the end of the city was marked by three slender skyscrapers, beyond which lay the low greenery of the farm. The skyscrapers were part of the tent framework, which overhead was an arched network of sky-colored lines. The tent fabric itself was invisible, and so taken all in all, it appeared that they stood in the open air. That was gold. Nicosia was going to be a popular city.

Chalmers said as much to the audience, and enthusiastically they agreed. Apparently he had the crowd, fickle souls that they were, about as securely as John. Chalmers was bulky and dark, and he knew he presented quite a contrast to John's blond good looks; but he knew as well that he had his own rough charisma, and as he warmed up he drew on it, falling into a selection of his own stock phrases.

Then a shaft of sunlight lanced down between the clouds, striking the upturned faces of the crowd, and he felt an odd tightening in his stomach. So many people there, so many strangers! People in the mass were a

Of course he could never say it. Not at any time, perhaps, and certainly not in a speech. So he collected himself. "In the martian desolation," he said, "the human presence is, well, a remarkable thing" (they would care for each other more than ever before, a voice in his mind repeated sardonically). "The planet, taken in itself, is a dead frozen nightmare" (therefore exotic and sublime), "and so thrown on our own, we of necessity are in the process of... reorganizing a bit" (or forming a new social order)-so that yes, yes, yes, he found himself proclaiming exactly the same lies they had just heard from John!

Thus at the end of his speech he too got a big roar of applause. Irritated, he announced it was time to eat, depriving Maya of her chance for a final remark. Although probably she had known he would do that and so hadn't bothered to think of any. Frank Chalmers liked to have the last word.

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People crowded onto the temporary platform to mingle with the celebrities. It was rare to get this many of the first hundred in one spot anymore, and people crowded around John and Maya, Samantha Hoyle, Sax Russell and Chalmers.

Frank looked over the crowd at John and Maya. He didn't recognize the group of Terrans surrounding them, which made him curious. He made his way across the platform, and as he approached he saw Maya and John give each other a look. "There's no reason this place shouldn't function under normal law," one of the Terrans was saying.

Maya said to him, "Did Olympus Mons really remind you of Mauna Loa?"

"Sure," the man said. "Shield volcanoes all look alike."

Frank stared over this idiot's head at Maya. She didn't acknowledge the look. John was pretending not to have noticed Frank's arrival. Samantha Hoyle was speaking to another man in an undertone, explaining something; he nodded, then glanced involuntarily at Frank. Samantha kept her back turned to him. But it was John who mattered, John and Maya. And both

The air filled with overlapping conversations. Frank sank beneath the turbulence, wandered out to the northern perimeter. He stopped at a waist-high concrete coping: the city wall. Out of the metal stripping on its top rose four layers of clear plastic. A Swiss man was explaining things to a group of visitors, pointing happily.

"An outer membrane of piezoelectric plastic generates electricity from wind. Then two sheets hold a layer of airtight insulation. Then the inner layer is a radiation-capturing membrane, which turns purple and must be replaced. More clear than a window, isn't it?"

The visitors agreed. Frank reached out and pushed at the inner membrane. It stretched until his fingers were buried to the knuckles. Slightly cool. There was faint white lettering printed on the plastic: Isidis Planitia Polymers. Through the sycamores over his shoulder he could still see the platform at the apex. John and Maya and their cluster of terran admirers were still there, talking animatedly. Conducting the business of the planet. Deciding the fate of Mars.

He stopped breathing. He felt the pressure of his molars squeezing together. He poked the tent wall so hard that he pushed out the outermost membrane, which meant that some of his anger would be captured and stored as electricity in the town's grid. It was a special polymer in that respect; carbon atoms were linked to hydrogen and fluorine atoms in such a way that the resulting substance was even more piezoelectric than quartz. Change one element of the three, however, and everything shifted; substitute chlorine for fluorine, for instance, and you had saran wrap.

Frank stared at his wrapped hand, then up again at the other two elements, still bonded to each other. But without him they were nothing!

Angrily he walked into the narrow streets of the city.

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Clustered in a plaza like mussels on a rock were a group of Arabs, drinking coffee. Arabs had arrived on Mars only ten years before, but already they were a force to be reckoned with. They had a lot of money, and they had teamed up with the Swiss to build a number of towns, including this one. And they liked it on Mars. "It's like a cold day in the

square Hajr el-Kia Meshab, the red granite open place in town. He gestured at the rust-colored flagstones. Frank nodded and asked what kind of stone it was. He spoke Arabic for as long as he could, pushing the edges of his ability and getting some good laughs in response. Then he sat at the central table and relaxed, feeling like he could have been on a street in Damascus or Cairo, comfortable in the wash of Arabic and expensive cologne.

He studied the men's faces as they talked. An alien culture, no doubt about it. They weren't going to change just because they were on Mars, they put the lie to John's vision. Their thinking clashed radically with Western thought; for instance the separation of church and state was wrong to them, making it impossible for them to agree with Westerners on the very basis of government. And they were so patriarchal that some of their women were said to be illiterate-illiterates, on Mars! That was a sign. And indeed these men had the dangerous look that Frank associated with machismo, the look of men who oppressed their women so cruelly that naturally the women struck back where they could, terrorizing sons who then terrorized wives who terrorized sons and so on and so on, in an endless death spiral of twisted love and sex hatred. So that in that sense they were all madmen.

Which was one reason Frank liked them. And certainly they would come in useful to him, acting as a new locus of power. Defend a weak new neighbor to weaken the old powerful ones, as Machiavelli had said. So he drank coffee, and gradually, politely, they shifted to English.

"How did you like the speeches?" he asked, looking into the black mud at the bottom of his demitasse.

"John Boone is the same as ever," old Zeyk replied. The others laughed angrily. "When he says we will make an indigenous Martian culture, he only means some of the Terran cultures here will be promoted, and others attacked. Those perceived as regressive will be singled out for destruction. It is a form of Atatürkism."

"He thinks everyone on Mars should become American," said a man named Nejmi.

They laughed at that, but the younger men's moods had a bitter edge. They all believed that before their arrival Boone had argued in secret against UN approval for Arab settlements. Frank encouraged this belief, which was almost true-John disliked any ideology that might get in his way. He wanted the slate as blank as possible in everybody who came up.

The Arabs, however, believed that John disliked them in particular. Young Selim el-Hayil opened his mouth to speak, and Frank gave him a swift warning glance. Selim froze, then pursed his mouth angrily. Frank said, "Well, he's not as bad as all that. Although to tell the truth I've heard him say it would have been better if the Americans and Russians had been able to claim the planet when they arrived, like explorers in the old days."

Their laughter was brief and grim. Selim's shoulders hunched as if struck. Frank shrugged and smiled, spread his hands wide. "But it's pointless! I mean, what can he do?"

Old Zeyk lifted his eyebrows. "Opinions vary."

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Chalmers got up to move on, meeting for one instant Selim's insistent gaze. Then he strode down a side street, one of the narrow lanes that connected the city's seven main boulevards. Most were paved with cobblestones or streetgrass, but this one was rough blond concrete. He slowed by a recessed doorway, looked in the window of a closed boot manufactory. His faint reflection appeared in a pair of bulky walker boots.

Opinions vary. Yes, a lot of people had underestimated John Boone-Chalmers had done it himself many times. An image came to him of John in the White House, pink with conviction, his disobedient blond hair flying wildly, the sun streaming in the Oval Office windows and illuminating him as he waved his hands and paced the room, talking away while the President nodded and his aides watched, pondering how best to co-opt that electrifying charisma. Oh, they had been hot in those days, Chalmers and Boone; Frank with the ideas and John the front man, with a momentum that was practically unstoppable. It would be more a matter of derailment, really.

Selim el-Hayil's reflection appeared among the boots.

The treaty comes up for renewal soon," Frank said. "And Boone's coalition is bypassing me." He ground his teeth. "I don't know what their plans are, but I'm going to find out tonight. You can imagine what they'll be, anyway. Western biases, certainly. He may withhold his approval of a new treaty unless it contains guarantees that all settlements will be made only by the original treaty signatories." Selim shivered, and Frank pressed; "It's what he wants, and it's very possible he could get it, because his new coalition makes him more powerful than ever. It could mean an end to settlement by non-signatories. You'll become guest scientists. Or get sent back."

In the window the reflection of Selim's face appeared a kind of mask, signifying rage. "Battal, battal," he was muttering. Very bad, very bad. His hands twisted as if out of his control, and he muttered about the Koran or Camus, Persepolis or the Peacock Throne, references scattered nervously among non-sequiturs. Babbling.

"Talk means nothing," Chalmers said harshly. "When it comes down to it, nothing matters but action."

That gave the young Arab pause. "I can't be sure," he said at last.

Frank poked him in the arm, watched a shock run through the man. "It's your people we're talking about. It's this planet we're talking about."

Selim's mouth disappeared under his moustache. After a time he said, "It's true."

Frank said nothing. They looked in the window together, as if judging boots.

Finally Frank raised a hand. "I'll talk to Boone again," he said quietly. "Tonight. He leaves tomorrow. I'll try to talk to him, to reason with him. I doubt it will matter. It never has before. But I'll try. Afterwards... we should meet."

"Yes."

"In the park, then, the southernmost path. Around eleven."

Selim nodded.

Chalmers transfixed him with a stare. "Talk means nothing," he said brusquely, and walked away.

he said to two young women in front of him. They nodded politely and then resumed conversation in guttural Schwyzerdüütsch, a dialect never written down, a private code, incomprehensible even to Germans. It was another impenetrable culture, the Swiss, in some ways even more so than the Arabs. That was it, Frank thought; they worked well together because they were both so insular that they never made any real contact. He laughed out loud as he took a mask, a black face with studded with red paste gems. He put it on.

A line of masked celebrants snaked down the boulevard, drunk, loose, at the edge of control. At an intersection the boulevard opened up into a small plaza, where a fountain shot sun-colored water into the air. Around the fountain a steel drum band hammered out a calypso tune. People gathered around, dancing or hopping in time to the low bong of the bass drum. A hundred meters overhead a vent in the tent frame poured frigid air down onto the plaza, air so cold that little flakes of snow floated in it, glinting in the light like chips of mica. Then fireworks banged just under the tenting, and colored sparks fell down through the snowflakes.

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Sunset, more than any other time of day, made it clear that they stood on an alien planet; something in the slant and redness of the light was fundamentally wrong, upsetting expectations wired into the savannah brain over millions of years. This evening was providing a particularly garish and unsettling example of the phenomenon. Frank wandered in its light, making his way back to the city wall. The plain south of the city was littered with rocks, each one dogged by a long black shadow. Under the concrete arch of the city's south gate he stopped. No one there. The gates were locked during festivals like these, to keep drunks from going out and getting hurt. But Frank had gotten the day's emergency code out of the fire department AI that morning, and when he was sure no one was watching he tapped out the code and hurried into the lock. He put on a walker, boots, and helmet, and went through the middle and outer doors.

The twilight sky was a dark pink over Pavonis Mons. To the east stretched Nicosia's farm, a long low greenhouse running downslope from the city. From this angle one could see that the farm was larger than the town proper, and jammed with green crops. Frank clumped to one of its outer locks, and entered.

Inside the farm it was hot, a full sixty degrees warmer than outside, and fifteen degrees warmer than in the city. He had to keep his helmet on, as the farm air was tailored to the plants, heavy on CO2 and short on oxygen. He stopped at a work station and fingered through drawers of small tools and pesticide patches, gloves and bags. He selected three tiny patches and put them in a plastic bag, then slipped the bag gently into the walker's pocket. The patches were clever pesticides, biosaboteurs designed to provide plants with systemic defenses; he had been reading about them, and knew of a combination that in animals would be deadly to the organism. . . .

He put a pair of shears in the walker's other pocket. Narrow gravel paths led him up between long beds of barley and wheat, back toward the city proper. He went in the lock leading into town, unclipped his helmet, stripped off the walker and boots, transferred the contents of the walker pockets to his coat. Then he went back into the lower end of town.

Here the Arabs had built a medina, insisting that such a neighborhood was crucial to a city's health; the boulevards narrowed, and between them lay warrens of twisted alleyways taken from the maps of Tunis or Algiers, or generated randomly. Nowhere could you see from one boulevard to the next, and the sky overhead was visible only in plum strips, between buildings that leaned together.

Most of the alleys were empty now, as the party was uptown. A pair of cats skulked between buildings, investigating their new home. Frank took the shears from his pocket and scratched into a few plastic windows, in Arabic lettering, Jew, Jew, Jew, Jew, Jew. He walked on, whistling through his teeth. Corner cafés were little caves of light. Bottles clinked like prospectors' hammers. An Arab sat on a squat black speaker, playing an electric guitar.

approaching and waved, recognizing him despite the mask. That was how the first hundred knew each other...

"Hey, Frank," he said. "You look like you're having a good time."

"I am," Frank said through his mask. "I love cities like this, don't you? A mixed-species flock. It shows you what a diverse collection of cultures Mars is."

John's smile was easy. His eyes shifted as he surveyed the boulevard below.

Sharply Frank said, "A place like this is a crimp in your plan, isn't it?"

Boone's gaze returned to him. The surrounding crowd slipped away, sensing the agonistic nature of the exchange. Boone said to Frank, "I don't have a plan."

"Oh come on! What about your speech?"

Boone shrugged. "Maya wrote it."

A double lie: that Maya wrote it, that John didn't believe it. Even after all these years it was almost like talking to a stranger. To a politician at work. "Come on, John," Frank snapped. "You believe all that and you know it. But what are you going to do with all these different nationalities? All the ethnic hatreds, the religious manias? Your coalition can't possibly keep a thumb on all this. You can't keep Mars for yourselves, John, it's not a scientific station anymore, and you're not going to get a treaty that makes it one."

"We're not trying to."

"Then why are you trying to cut me out of the talks!"

"I'm not!" John looked injured. "Relax, Frank. We'll hammer it out together just like we always have. Relax."

Frank stared at his old friend, nonplussed. What to believe? He had never known how to think of John-the way he had used Frank as a springboard, the way he was so friendly. . . hadn't they begun as allies, as friends?

It occurred to him that John was looking for Maya. "So where is she?"

"Around somewhere," Boone said shortly.

tudal sloshing of the crowd there was a low tearing sound.

He shouldn't have been surprised, he shouldn't. He knew John as well as one could know another person; but it had never been any of his business. Into the trees of the park, under the hand-sized leaves of the sycamores. When had it been any different! All that time together, those years of friendship; and none of it had mattered. Diplomacy by other means.

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He looked at his watch. Nearly eleven. He had an appointment with Selim. Another appointment. A lifetime of days divided into quarter hours had made him used to running from one appointment to the next, changing masks, dealing with crisis after crisis, managing, manipulating, doing business in a hectic rush that never ended; and here it was a celebration, Mardi Gras, Fassnacht! and he was still doing it. He couldn't remember any other way.

He came on a construction site, skeletal magnesium framing surrounded by piles of bricks and sand and paving stones. Careless of them to leave such things around. He stuffed his coat pockets with fragments of brick just big enough to hold. Straightening up, he noticed someone watching him from the other side of the site-a little man with a thin face under spiky black dreadlocks, watching him intently. Something in the look was disconcerting, it was as if the stranger saw through all his masks and was observing him so closely because he was aware of his thoughts, his plans.

Spooked, Chalmers beat a quick retreat into the bottom fringe of the park. When he was sure he had lost the man, and that no one else was watching, he began throwing stones and bricks down into the lower town, hurling them as hard as he could. And one for that stranger too, right in the face! Overhead the tent framework was visible only as a faint pattern of occluded stars; it seemed they stood free, in a chill night wind. Air circulation was high tonight, of course. Broken glass, shouts. A scream. It really was loud, people were going crazy. One last paving stone, heaved

easy to reign distress. Twenty-five years of friendship, and he lied to me! He struck a tree trunk with his palm, and the patches flew away in the dark. He controlled himself. "His coalition is going to recommend that all Martian settlements originate in the countries that signed the first treaty." It was possible; and it was certainly plausible.

"He hates us!" Selim cried.

"He hates everything that gets in his way. And he can see that Islam is still a real force in people's lives. It shapes the way people think, and he can't stand that."

Selim shuddered. In the gloom the whites of his eyes were bright. "He has to be stopped."

Frank turned aside, leaned against a tree. "I... don't know."

"You said it yourself. Talk means nothing."

Frank circled the tree, feeling dizzy. You fool, he thought, talk means everything. We are nothing but information exchange, talk is all we have!

He came on Selim again and said, "How?"

"The planet. It is our way."

"The city gates are locked tonight."

That stopped him. His hands started to twist.

Frank said, "But the gate to the farm is still open."

"But the farm's outer gates will be locked."

Frank shrugged, let him figure it out.

And quickly enough Selim blinked, and said "Ah." Then he was gone.

###

Frank sat between trees, on the ground. It was a sandy damp brown dirt, product of a great deal of engineering. Nothing in the city was natural, nothing.

After a time he got to his feet. He walked through the park, looking at people. If I find one good city I will spare the man. But in an open area masked figures darted together to grapple and fight, surrounded by watchers who smelled blood. Frank went back to the construction site to get more bricks. He threw them and some people saw him, and he had to run. Into the trees again, into the little tented wilderness, escaping

domino, with metallic blue sequins. It was hard to see her eyes.

"Hello, Frank," she said, as if he wore no mask. He almost turned and ran. Mere recognition was almost enough to do it . . .

But he stayed. He said, "Hello, Maya. Nice sunset, wasn't it?"

"Spectacular. Nature has no taste. It's just a city inauguration, but it looked like Judgement Day."

They were under a streetlight, standing on their shadows. She said, "Have you enjoyed yourself?"

"Very much. And you?"

"It's getting a little wild."

"It's understandable, don't you think? We're out of our holes, Maya, we're on the surface at last! And what a surface! You only get these kind of long views on Tharsis."

"It's a good location," she agreed.

"It will be a great city," Frank predicted. "But where do you live these days, Maya?"

"In Underhill, Frank, just as always. You know that."

"But you're never there, are you? I haven't seen you in a year or more."

"Has it been that long? Well, I've been in Hellas. Surely you heard?"

"Who would tell me?"

She shook her head and blue sequins glittered. "Frank." She turned aside, as if to walk away from the question's implications.

Angrily Frank circled her, stood in her path. "That time on the Ares," he said. His voice was tight, and he twisted his neck to loosen his throat, to make speech easier. "What happened, Maya? What happened?"

She shrugged and did not meet his gaze. For a long time she did not speak. Then she looked at him. "The spur of the moment," she said.

##

And then it was ringing midnight, and they were in the martian time slip, the thirty-nine and a half minute gap between 12:00:00 and 12:00:01, when all the clocks went blank or stopped moving. This was how the first hundred had decided to reconcile Mars's slightly longer day with the twenty-four hour clock, and the solution had proved oddly satisfactory.

we should go have a look.

The cries intensified. Trouble somewhere. They started down through the park, their steps getting longer, until they were in the martian lope. The park seemed bigger to Frank, and for a moment he was scared.

The central boulevard was covered with trash. People darted through the dark in predatory schools. A nerve-grating siren went off, the alarm that signaled a break in the tent. Windows were shattering up and down the boulevard. There on the streetgrass was a man flat on his back, the surrounding grass smeared with black streaks. Chalmers seized the arm of a woman crouched over him. "What happened?" he shouted.

She was weeping. "They fought! They are fighting!"

"Who? Swiss, Arab?"

"Strangers," she said. "Ausländer." She looked blindly at Frank. "Get help!"

Frank rejoined Maya, who was talking to a group next to another fallen figure. "What the hell's going on?" he said to her as they took off toward the city's hospital.

"It's a riot," she said. "I don't know why." Her mouth was a straight slash, in skin as white as the domino still covering her eyes.

Frank pulled off his mask and threw it away. There was broken glass all over the street. A man rushed at them. "Frank! Maya!"

It was Sax Russell; Frank had never seen the little man so agitated. "It's John-he's been attacked!"

"What?" they exclaimed together.

"He tried to stop a fight, and three or four men jumped him. They knocked him down and dragged him away!"

"You didn't stop them?" Maya cried.

"We tried-a whole bunch of us chased them. But they lost us in the medina."

Maya looked at Frank.

"What's going on!" he cried. "Where would anyone take him?"

"The gates," she said.

"But they're locked tonight, aren't they?"

thirty or them in walkers, and they ran down and through the lock and flooded down the farm's aisles, spreading out, running between crops.

They found him among the radishes. His jacket was pulled over his face, in the standard emergency air pocket; he must have done it unconsciously, because when they rolled him carefully onto one side, they saw a lump behind one ear.

"Get him inside," Maya said, her voice a bitter croak- "Hurry, get him inside."

Four of them lifted him. Chalmers cradled John's head, and his fingers were intertwined with Maya's. They trotted back up the shallow steps. Through the farm gate they stumbled, back into the heat of the city. One of the Swiss led them to the nearest medical center, already crowded with desperate people. They got John onto an empty bench. His unconscious expression was pinched, determined. Frank tore off his helmet and went to work pulling rank, bulling into the emergency rooms and shouting at the doctors and nurses. They ignored him until one doctor said, "Shut up. I'm coming." She went into the hallway and with a nurse's help clipped John into a monitor, then checked him out with the abstracted, absent look doctors have while working: hands at neck and face and head and chest, stethoscope. . . .

Maya explained what they knew. The doctor took down an oxygen unit from the wall, looking at the monitor. Her mouth was bunched into a displeased little knot. Maya sat at the end of the bench, face suddenly distraught. Her domino had long since disappeared.

Frank crouched beside her.

"We can keep working on him," the doctor said, "but I'm afraid he's gone. Too long without oxygen, you know."

"Keep working on him," Maya said.

They did, of course. Eventually other medical people arrived, and they carted him off to an emergency room. Frank, Maya, Sax, Samantha, and a number of locals sat outside in the hall. Doctors came and went; their faces had the blank look they took on in the presence of death. Protective

Maya put a hand on Frank's shoulder, and he almost winched, his throat clamped down to nothing, it really hurt. "I'm sorry," he managed to say.

She shrugged the remark aside, frowned. She had somewhat the air of the medical people. "Well," she said, "you never liked him much anyway."

"True," he said, thinking it would be politic to seem honest with her at that moment. But then he shuddered and said bitterly, "What do you know about what I like or don't like."

He shrugged her hand aside, struggled to his feet. She didn't know; none of them knew. He started to go into the emergency room, changed his mind. Time enough for that at the funeral. He felt hollow; and suddenly it seemed to him that everything good had gone away.

He left the medical center. Impossible not to feel sentimental at such moments. He walked through the strangely hushed darkness of the city, into the land of Nod. The streets glinted as if stars had fallen to the pavement. People stood in clumps, silent, stunned by the news. Frank Chalmers made his way through them, feeling their stares, moving without thought toward the platform at the top of town; and as he walked he said to himself, Now we'll see what I can do with this planet.

Part Two

The Voyage Out

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"Since they're going to go crazy anyway, why not just send insane people in the first place, and save them the trouble?" said Michel Duval.

He was only half joking; his position throughout had been that the criteria for selection constituted a mind-boggling collection of double binds.

His fellow psychologists stared at him. "Can you suggest any specific changes?" asked the chairman, Charles York.

themselves with the shelters and equipment that were already landing on Mars in robot vehicles; familiarizing themselves with a landscape that was almost as cold and harsh as Mars itself; familiarizing themselves with each other. They lived in a cluster of habitats located in Wright Valley, the largest of Antarctica's Dry Valleys. They ran a biosphere farm, and then they settled into the habitats through a dark austral winter, and studied secondary or tertiary professions, or ran through simulations of the various tasks they would be performing on the spaceship Ares, or later on the red planet itself; and always, always aware that they were being watched, evaluated, judged.

They were by no means all astronauts or cosmonauts, although there were a dozen or so of each, with many more up north clamoring to be included. But the majority of the colonists would have to have their expertise in areas that would come into play after landfall: medical skills, computer skills, robotics, systems design, architecture, geology, biosphere design, genetic engineering, biology; also every sort of engineering, and construction expertise of several kinds. Those who had made it to Antarctica were an impressive group of experts in the relevant sciences and professions, and they spent a good bit of their time cross-training to become impressive in secondary and tertiary fields as well.

And all their activity took place under the constant pressure of observation, evaluation, judgement. It was necessarily a stressful procedure; that was part of the test. Michel Duval felt that this was a mistake, as it tended to ingrain reticence and distrust in the colonists, preventing the very compatability that the selection committee was supposedly seeking. One of the many double binds, in fact. The candidates themselves were quiet about that aspect of things, and he didn't blame them; there wasn't any better strategy to take, that was a double bind for you: it insured silence. They could not afford to offend anyone, or complain too much; they could not risk withdrawing too far; they could not make enemies.

So they went on being brilliant and accomplished enough to stand out, but normal enough to get along. They were old enough to have learned a

that the colony would become. On, the double binds were endless! They were to be both extraordinary and extra ordinary, at one and the same time. An impossible task, and yet a task that was an obstacle to their heart's greatest desire; making it the very stuff of anxiety, fear, resentment, rage. Conquering all those stresses. . . .

But that too was part of the test. Michel could not help but observe with great interest. Some failed, cracked in one way or another. An American thermal engineer became increasingly withdrawn, then destroyed several of their rovers and had to be forcibly restrained and removed. A Russian pair became lovers, and then had a falling out so violent that they couldn't stand the sight of each other, and both had to be dropped. This melodrama illustrated the dangers of romance going awry, and made the rest of them very cautious in this regard. Relationships still developed, and by the time they left Antarctica they had had three marriages, and these lucky six could consider themselves in some sense "safe"; but most of them were so focused on getting to Mars that they put these parts of their lives on hold, and if anything conducted discreet friendships, in some cases hidden from almost everyone, in other cases merely kept out of the view of the selection committees.

And Michel knew he was seeing only the tip of the iceberg. He knew that critical things were happening in Antarctica, out of his sight. Relationships were having their beginnings; and sometimes the beginning of a relationship determines how the rest of it will go. In the brief hours of daylight, one of them might leave the camp and hike out to Lookout Point; and another follow; and what happened out there might leave its mark forever. But Michel would never know.

And then they left Antarctica, and the team was chosen. There were fifty men and fifty women: thirty-five Americans, thirty-five Russians, and thirty miscellaneous international affiliates, fifteen invited by each of the two big partners. Keeping such perfect symmetries had been difficult, but the selection committee had persevered.

The lucky ones flew to Cape Canaveral or Baikonur, to ascend to orbit. At this point they both knew each other very well and did not know each

The selection committee had thus created some the very problems it had hoped to prevent. Some of them were aware of this; and naturally they took care to include among the colonists the most qualified psychiatrist they could think of.

So they sent Michel Duval.

-+=*=-

At first it felt like a shove in the chest. Then they were pushed back in their chairs, and for a second the pressure was deeply familiar: one gee, the gravity they would never live in again. The Ares had been orbiting Earth at 28,000 kilometers per hour. For several minutes they accelerated, the rockets' push so powerful that their vision blurred as corneas flattened, and it took an effort to inhale. At 40,000 kilometers per hour the burn ended. They were free of the Earth's pull, in orbit to nothing but the sun.

The colonists sat in the delta V chairs blinking, their skin flushed, their hearts pounding. Maya Katarina Toitovna, the official leader of the Russian contingent, glanced around. People appeared stunned. When obsessives are given their object of desire, what do they feel? It was hard to say, really. In a sense their lives were ending; and yet something else, some other life, had finally, finally begun. . . . Filled with so many emotions at once, it was impossible not to be confused; it was an interference pattern, some feelings cancelled, others reinforced. Unbuckling from her chair Maya felt a grin contorting her face, and she saw on the faces around her the same helpless grin; all but Sax Russell, who was as impassive as an owl, blinking as he looked over the readouts on the room's computer screens.

They floated weightlessly around the room. July 20th, 2026: they were moving faster than anyone in history. They were on their way. It was the beginning of a nine-month voyage-or of a voyage that would last the rest of their lives. They were on their own.

###

in Torus DS dining hall they mingled in a kind of cocktail party, celebrating the departure. Maya wandered about, sipping freely from a mug of champagne, feeling slightly unreal and extremely happy, a mix that reminded her of her wedding reception many years before. Hopefully this marriage would go better than that one had, she thought, because this one was going to last forever. The hall was loud with talk. "It's a symmetry not so much sociological as mathematic. A kind of aesthetic balance." "We're hoping to get it into the parts per billion range, but it's not going to be easy." Maya turned down an offered refill, feeling giddy enough. Besides, this was work. She was co-mayor of this village, so to speak, responsible for group dynamics, which were bound to get complex. Antarctic habits kicked in even at this moment of triumph, and she listened and watched like an anthropologist, or a spy.

"The shrinks have their reasons. We'll end up fifty happy couples."

"And they already know the match-ups."

She watched them laugh. Smart, healthy, supremely well-educated; was this the rational society at last, the scientifically-designed community that had been the dream of the Enlightenment? But there was Arkady, Nadia, Vlad, Ivana. She knew the Russian contingent too well to have many illusions on that score. They were just as likely to end up resembling an undergraduate dorm at a technical university, occupied by bizarre pranks and lurid affairs. Except they looked a bit old for that kind of thing; several men were balding, and many of both sexes showed touches of gray in their hair. It had been a long haul; their average age was forty-six, with extremes ranging from thirty-three (Hiroko Ai, the Japanese prodigy of biosphere design) to fifty-eight (Vlad Taneev, winner of a Nobel Prize in medicine).

Now, however, the flush of youth was on all their faces. Arkady Bogdanov was a portrait in red: hair, beard, skin. In all that red his eyes were a wild electric blue, bugging out happily as he exclaimed, "Free at last! Free at last! All our children are free at last!" The video cameras had been turned off, after Janet Blyleven had recorded a series of interviews for the TV stations back home; they were out of contact with Earth, in the

the disparate, fractious Russian team, with the several commonwealth members-well, that was okay. It was interesting work, and she was used to it. And her skills might very well turn out to be the most important ones aboard. They had to get along, after all. And that was a matter of guile, and cunning, and will. Willing other people to do your bidding! She looked at the crowd of glowing faces, and laughed. Everyone aboard was good at their work, but some were gifted far beyond that. She had to identify those people, to seek them out, to cultivate them. Her ability to function as leader depended on it; for in the end, she thought, they would surely become a kind of loose scientific meritocracy. And in a such a society as that, the extraordinarily talented constituted the real powers. When push came to shove, they would be the colony's true leaders-they, or those who influenced them.

She looked around, located her opposite number, Frank Chalmers. In Antarctica she had not gotten to know him very well. A tall, big, swarthy man. He was talkative enough, and incredibly energetic; but hard to read. She found him attractive. Did he see things as she did? She had never been able to tell. He was talking to a group across the length of the room, listening in that sharp inscrutable way of his, head tilted to the side, ready to pounce with a witty remark. She was going to have to find out more about him. More than that, she was going to have to get along with him.

She crossed the room, stopped by his side, stood so their upper arms just barely touched. Leaned her head in toward his. A brief gesture at their comrades: "This is going to be fun, don't you think?"

Chalmers glanced at her. "If it goes well," he said.

###

After the celebration and dinner, unable to sleep, Maya wandered through the Ares. All of them had spent time in space before, but never in anything like the Ares, which was enormous. There was a kind of penthouse at the front end of the ship, a single tank like a bowsprit, which rotated in the opposite direction the ship did, so that it held steady. Solar watch instruments, radio antennas, and all the other equipment which worked best without rotation were located in this tank, and at the very tip of

agencies agreed to build the Ares, the use of the tanks had become routinized, with standard coupling units, interiors, propulsion systems and so forth; and construction of the big ship had taken less than two years.

It looked like something made from a children's toy set, in which cylinders were attached at their ends to create more complex shapes-in this case, eight hexagons of connected cylinders, which they called toruses, lined up and speared down the middle by a central hub shaft, made of a cluster of five lines of cylinders. The toruses were connected to the hub shaft by thin crawl spokes, and the resulting object looked somewhat like a piece of agricultural machinery, say the arm of a harvester combine, or a mobile sprinkler unit. Or like eight knobby doughnuts, Maya thought, toothpicked to a stick. Just the sort of thing a child would appreciate.

The eight toruses had been made from American tanks, and the five bundled lengths of the central shaft were Russian. Both were about fifty meters long and ten meters in diameter. Maya floated aimlessly down the tanks of the hub shaft; it took her a long time, but she was in no hurry. She dropped down into Torus G. There were rooms of all shapes and sizes, right up to the largest, which occupied entire tanks. The floor in one of these she passed through was set just below the halfway mark, so its interior resembled a long Quonset hut. But the majority of the tanks had been divided up into smaller rooms. She had heard there were over five hundred of them in all, making for a total interior space roughly the equivalent of a large city hotel.

But would it be enough?

###

Perhaps it would. After the Antarctic, life on the Ares seemed an expansive, labyrinthine, airy experience. Around six every morning the darkness in the residential toruses would lighten slowly to a gray dawn, and around six-thirty a sudden brightening marked "sunrise." Maya woke to it as she had all her life. After visiting the lavatory she would make her way to torus D's kitchen, heat a meal, and take it into the big dining hall. There she sat at a table flanked by potted lime trees. Hummingbirds, finches,

up a child, keeping an apartment, running a career, it had been too much for one person, and she had joined the many women angrily demanding a better deal than they had gotten in the Soviet years, which had given them half the money jobs while leaving them all the work at home. No more waiting, no more mute endurance; they had to take advantage while the instability lasted. "Everything is on the table!" Maya's mother would exclaim while cooking their meager dinners; "everything but food!"

And perhaps they had taken advantage. In the Soviet era women had learned to help each other, a nearly self-contained world had come into being, of mothers, sisters, daughters, babushkas, women friends, colleagues, even strangers. In the commonwealth this world had consolidated their gains and thrust even further into the power structure, into the tight male oligarchies of Russian government.

One of the fields most affected had been the space program. Maya's mother, slightly involved in space medical research, always swore that cosmonautics would need an influx of women, if only to provide female data for the medical experimentation. "They can't hold Valentina Tereshkova against us forever!" her mother would cry. And apparently she had been right, because after studying aeronautic engineering at Moscow University, Maya had been accepted in a program at Baikonur, and had done well, and had gotten an assignment on Novy Mir. While up there she had redesigned the interiors for improved ergonomic efficiency, and later spent a year in command of the station, during which a couple of emergency repairs had bolstered her reputation. Administrative assignments in Baikonur and Moscow had followed, and over time she had managed to penetrate Glavkosmos's little politburo, playing the men against each other in the subtlest of ways, marrying one of them, divorcing him, rising afterwards in Glavkosmos a free agent, becoming one of the utmost inner circle, the double triumvirate.

And so here she was, having a leisurely breakfast. "So civilized," Nadia would scoffed. She was Maya's best friend on the Ares, a short woman round as a stone, with a square face framed by cropped salt-and-pepper hair. Plain as could be. Maya, who knew she was good-looking,

Arkady, winking down coffee rolls, leaned over from the next table. "It's not enough," he said, as if he had been part of their conversation all along. His red beard, growing wilder every day, was dusted with crumbs. "We should declare every other Sunday to be moving day, and have everyone shift quarters on a random basis. People would get to know more of the others, and there would be fewer cliques. And the notion of ownership of the rooms would be reduced."

"But I like owning a room," Nadia said.

Arkady downed another roll, grinned at her as he chewed. It was a miracle he had passed the selection committee.

But Maya brought up the subject with the Americans, and though no one liked Arkady's plan, a single exchange of half the apartments struck them as a good idea. After some consulting and discussion, the move was arranged. They did it on a Sunday morning; and after that, breakfast was a little more cosmopolitan. Mornings in the D dining hall now included Frank Chalmers and John Boone, and also Sax Russell, Mary Dunkel, Janet Byleven, Rya Jimenez, Michel Duval, and Ursula Kohl.

John Boone turned out to be an early riser, getting to the dining hall even before Maya. "This room is so spacious and airy, it really has an outdoor feel to it," he said from his table one dawn when Maya came in. "A lot better than B's hall."

"The trick is to remove all chrome and white plastic," Maya replied. Her English was fairly good, and getting better fast. "And then paint the ceiling like real sky."

"Not just straight blue, you mean?"

"Yes."

He was, she thought, a typical American: simple, open, straightforward, relaxed. And yet this particular specimen was one of the most famous people in history. It was an unavoidable, heavy fact; but Boone seemed to slip out from under it, to leave it around his feet on the floor. Intent on the taste of a roll, or some news on the table screen, he never referred to his previous expedition, and if someone brought the subject up he spoke as if it were no different from any of the flights the rest of them had taken. But it

orphanning in Maya's opinion, and it seemed to her they were more Earth-oriented than the rest, and in frequent communication with people back home. It was a little strange to have their psychiatrist in that category.

Anyway English was the ship's lingua franca, and at first Maya had thought that this gave the Americans an advantage. But then she noticed that when they spoke they were always on stage to everyone, while the rest of them had more private languages they could switch to if they wanted.

Frank Chalmers was the exception to all that, however. He spoke five languages, more than anyone else aboard. And he did not fear to use his Russian, even though it was very bad; he just hacked out questions and then listened to the answers, with a really piercing intensity, and a quick startling laugh. He was an unusual American in many ways, Maya thought. At first he seemed to have all the characteristics, he was big, loud, maniacally energetic, confident, restless; talkative enough, after that first coffee; friendly enough. It took a while to notice how he turned the friendliness on and off, and to notice how little his talk revealed. Maya never learned a thing about his past, for instance, despite deliberate efforts to chat him up. It made her curious. He had black hair, a swarthy face, light hazel eyes-handsome in a tough-guy way-his smile brief, his laugh sharp, like Maya's mother's. His gaze too was sharp, especially when looking at Maya; a matter of evaluating the other leader, she assumed. He acted toward her as if they had an understanding built on long acquaintance, a presumption which made her uneasy given how little they had spoken together in Antarctica. She was used to thinking of women as her allies, and of men as attractive but dangerous problems. So a man who presumed to be her ally was only the more problematic. And dangerous. And... something else.

She recalled only one moment when she had seen further into him than the skin, and that had been back in Antarctica. After the thermal engineer had cracked and been sent north, news of his replacement had come down, and when it was announced everyone was quite surprised and excited to hear that it was going to be John Boone himself, even though he

and Frank Chalmers something like an overactive executive officer, doing Boone's unspoken bidding. That could not be comfortable.

They were old friends, Maya had been told when she asked. But she saw few signs of it herself, even watching closely. They seldom talked to each other in public, and did not seem to visit in private. Thus when they were together she watched them more closely than ever, without ever consciously considering why; the natural logic of the situation just seemed to demand it. If they had been back at Glavkosmos, it would have made strategic sense to drive a wedge between them; but she didn't think of it that way here. There was a lot that Maya didn't think about consciously.

She watched, though. And one morning Janet Blyleven wore her video glasses into D hall for breakfast. She was a principal reporter for American television, and often she wove her way through the ship wearing her vidglasses, looking around and talking the commentary, collecting stories and transmitting them back home where they would be, as Arkady put it, "predigested and vomited back into that baby bird consensus."

It was nothing new, of course. Media attention was a familiar part of every astronaut's life, and during the selection process they had been more scrutinized than ever. Now, however, they were the raw material for programs magnitudes more popular than any space program had been before. Millions watched them as the ultimate soap opera, and this bothered some of them. So when Janet settled at the end of the table wearing those stylish spectacles with the optical fibers in the frame, there were a few groans. And at the other end of the table Ann Clayborne and Sax Russell were arguing, oblivious to any of them.

"It'll take years to find out what we have there, Sax. Decades. There's as much land on Mars as on Earth, with a unique geology and chemistry. The land has to be thoroughly studied before we can start changing it."

"We'll change it just by landing." Russell brushed aside Ann's objections as if they were spiderwebs on his face. "Deciding to go to Mars is like the first phrase of a sentence, and the whole sentence says—"

"Veni, vedi, veci."

Russell shrugged. "If you want to put it that way."

agitated, raising her voice. Maya glanced around, and saw that Frank didn't like the situation. But if he interrupted it he would give away to the millions the fact that he didn't want the colonists arguing in front of them. Instead he looked across the table and caught Boone's gaze. There was an exchange of expressions between the two so quick it made Maya blink.

Boone said, "When I was there before, I got the impression it was already Earthlike."

"Except two hundred degrees Kelvin," Russell said.

"Sure, but it looked like the Mojave, or the Dry Valleys. The first time I looked around on Mars I found myself keeping an eye out for one of those mummified seals we saw in the Dry Valleys."

And so on. Janet turned to him; and Ann, looking disgusted, picked up her coffee and left.

Afterward Maya concentrated, trying to recall the looks Boone and Chalmers had exchanged. They had been like something from a code, or the private languages invented by identical twins.

###

The weeks passed, and the days each began with a leisurely breakfast. Mid-mornings were far busier. Everyone had a schedule, although some were fuller than others. Frank's was packed, which was the way he liked it, a maniacal blur of activity. But the necessary work was not really all that great: they had to keep themselves alive and in shape, and keep the ship running, and keep preparing for Mars. Ship maintenance ranged from the intricacy of programming or repairs to the simplicity of moving supplies out of storage, or taking trash to the recyclers. The biosphere team spent the bulk of its time on the farm, which occupied large parts of Toruses C, E, and F; and everyone aboard had farm chores. Most enjoyed this work, and some even returned in their free hours. Everyone was on doctors' orders to spend three hours a day on treadmills, escalators, running wheels, or using weight machines. These hours were enjoyed or endured or despised, depending on temperament; but even those who claimed to despise them finished their exercises in noticeably (even measurably) better moods. "Beta endorphins are the best drug," Michel Duval would say.

the latest in image synthesizers, the simulations were so sophisticated that there was little visible difference between them and the act itself. This did not necessarily make them interesting: the standard orbital insertion approach, simulated weekly, was dubbed "The Mantra Run," and became quite a bore to every conceivable flight crew.

But sometimes even boredom was preferable to the alternatives; Arkady was their training specialist, and he had a perverse talent for designing problem runs so hard that they often "killed" everybody. These runs were strangely unpleasant experiences, and did not make Arkady popular among his victims. He mixed problem runs with Mantra Runs randomly, but more and more often they were problem runs; they would "approach Mars" and red lights would flash, sometimes with sirens, and they were in trouble again. Once they struck a planetesimal weighing approximately fifteen grams, leaving a large flaw in the heat shield. Sax Russell had calculated that their chances of hitting anything larger than a gram were about one in every seven thousand years of travel, but nevertheless there they were, emergency!, adrenalin pouring through them even as they poo-pooed the very idea of it, rushing up to the hub and into EVA suits, going out to fill the pothole before they hit the martian atmosphere and burned to a crisp; and halfway there, Arkady's voice came over their intercoms: "Not fast enough! All of us are dead."

But that was a simple one. Others.... The ship, for instance, was guided by a fly-by-wire system, meaning that the pilots fed instructions to flight computers which translated them into the actual thrusts needed to achieve the desired result. This was how it had to be, because when approaching a gravitational mass like Mars at their speed, one simply could not feel or intuit what burns would achieve the desired effects. So none of them were flyers in the sense of an pilot flying a plane. Nevertheless, Arkady frequently blew the entire massively redundant system just as they were reaching a critical moment (which failure, Russell said, had about a one in ten billion chance of happening) and they had to take over and command all the rockets mechanically, watching the monitors and an orange-on-black visual image of Mars bearing down on them, and they

they managed to survive a mechanical failure, they were tremendously pleased; it could be the high point of a week. Once John Boone successfully aerobraked by hand, with a single main rocket functioning, hitting the safe millisecond of arc at the only possible speed. No one could believe it. "Blind luck," Boone said, grinning widely as the deed was talked about at dinner.

Most of Arkady's problem runs ended in failure, however, meaning death for all. Simulated or not, it was hard not to be sobered by these experiences, and after that, irritated with Arkady for inventing them. One time they repaired every monitor in the bridge just in time to see the screens register a hit by a small asteroid, which sheared through the hub and killed them all. Another time Arkady, as part of the navigation team, made an "error" and instructed the computers to increase the ship's spin rather than decrease it. "Pinned to the floor by six gs!" he cried in mock horror, and they had to crawl on the floor for half an hour, pretending to rectify the error while weighing half a ton each. When they succeeded, Arkady leaped off the floor and began pushing them away from the control monitor. "What the hell are you doing?" Maya yelled.

"He's gone crazy," Janet said.

"He's simulated going crazy," Nadia corrected her. "We have to figure out-" doing an end run around Arkady "-how to deal with someone on the bridge going insane!"

Which no doubt was true. But they could see the whites of Arkady's eyes all the way around, and there wasn't a trace of recognition in him as he silently assaulted them; it took all five of them to restrain him, and Janet and Phyllis Boyle were hurt by his sharp elbows.

"Well?" he said at dinner afterward, grinning lopsidedly, as he was growing a fat lip. "What if it happens? We're under pressure up here, and the approach will be worst of all. What if someone cracks?" He turned to Russell and the grin grew wider. "What are the chances of that, eh?" And he began to sing a Jamaican song, in a Slavic Carribean accent: "Pressure drop, oh pressure drop, oh-o, pressure going to drop on you-oo-oo!"

screen and the screen went white, and small black letters appeared on it. Collision.

###

They were traveling to Mars in a Type II Hohmann Ellipse, a slow but efficient course, chosen from among other alternatives mainly because the two planets were in the correct position for it when the ship was finally ready, with Mars about forty-five degrees ahead of Earth in the plane of the ecliptic. During the voyage they would travel just over halfway around the Sun, making their rendezvous with Mars some three hundred days later. Their womb time, as Hiroko called it.

The psychologists back home had judged it worthwhile to alter things from time to time, to suggest the passing of the seasons on the Ares. Length of days and nights, weather, and ambient colors were shifted to accomplish this. Some had maintained their landfall should be a harvest, others that it should be a new spring; after a short debate it had been decided by vote of the voyagers themselves to begin with spring, so that they would travel through a summer rather than a winter; and as they approached their goal, the ship's colors would turn to the autumn tones of Mars itself, rather than to the light greens and blossom pastels they had left so far behind.

So in those first months, as they finished their morning's business, leaving the farm or the bridge, or staggering out of Arkady's merrily sadistic simulations, they walked into springtime. Walls were hung with pale green panels, or mural-sized photos of azaleas, and jacarandas, and ornamental cherries. The barley and mustard in the big farm rooms glowed vivid yellow with new blooms, and the forest biome and the ship's seven park rooms had been stocked with trees and shrubs in the spring of their cycles. Maya loved these colorful spring blossoms, and after her mornings' work she fulfilled part of her exercise regimen by taking a walk in the forest biome, which had a hilly floor, and was so thick with trees one could not see from one end of the chamber to the other. Here she often met Frank Chalmers, of all people, taking one of his short breaks. He said he liked the spring foliage, though he never seemed to look at it. They walked together, and

say. Sometimes he discussed the biome, or small technical problems, or news from home; more often he just seemed to want to walk with her. So-silent walks, up and down on narrow trails, through dense thickets of pine and aspen and birch. And always that presumption of closeness, as if they were old friends, or as if he were, very shyly (or subtly), courting her.

Thinking about that one day, it occurred to Maya that starting the Ares in springtime might have created a problem. Here they were in their mesocosm, sailing through spring, and everything was fertile and blooming, profligate and green, the air perfumed with flowers and windy, the days getting longer and warmer, and everyone in shirts and shorts, a hundred healthy animals, in close quarters, eating, exercising, showering, sleeping. Of course there had to be sex.

Well, it was nothing new. Maya herself had had some fantastic sex in space, most significantly during her second stint on Novy Mir, when she and Georgi and Yeli and Irina had tried every weightless variant imaginable, which was a great many indeed. But now it was different. They were older, they were stuck with each other for good: "Everything is different in a closed system," as Hiroko often said in other contexts. The idea that they should stay on a fraternal basis was big at NASA: out of the 1,348 pages of the tome NASA had compiled called Human Relations In Transit To Mars, only a single page was devoted to the subject of sex; and that page advised against it. They were, the tome suggested, something like a tribe, with a sensible taboo against intertribal mating. The Russians laughed hilariously at this. Americans were such prudes, really. "We are not a tribe," Arkady said. "We are the world."

And it was spring. And there were the married couples aboard, some of whom were pretty demonstrative; and there was the swimming pool in Torus E, and the sauna and whirlpool bath. Bathing suits were used in mixed company, this because of the Americans again, but bathing suits were nothing. Naturally it began to happen. She heard from Nadia and Ivana that the bubble dome was being used for assignations, in the quiet hours of the night; many of the cosmonauts and astronauts turned out to be fond of weightlessness. And the many nooks in the parks and the

was only a small number of potential partners, which tended to give things a musical chairs kind of feeling.

And for Maya there were additional problems. She was even more wary than usual of Russian men, because in this case it would mean sleeping with the boss; she was suspicious of that, knowing how it had felt when she had done it herself. Besides, none of them... well, she was attracted to Arkady, but she did not like him; and he seemed uninterested. Yeli she knew from before, he was just a friend; Dmitri she didn't care for; Vlad was older, Yuri not her type, Alex a follower of Arkady's. . . on and on like that.

And as for the Americans, or the internationals; well, that was a different kind of problem. Cross cultures, who knew? So. . . she kept to herself. But she thought about it. And occasionally, while waking up in the morning, or finishing a workout, she floated on a wave of desire that left her washed up on the shore of bed or shower, feeling alone.

###

Thus late one morning, after a particularly harrowing problem run, which they had almost solved and then failed to solve, she ran into Frank Chalmers in the forest biome and returned his hello, and they walked for about ten meters into the woods, and stopped. She was in shorts and tank-top, barefoot, sweaty and flushed from the crazed simulation. He was in shorts and aT-shirt, barefoot, sweaty and dusty from the farm. Suddenly he laughed his sharp laugh, and reached out to touch her upper arm with two fingertips. "You're looking happy today." With that darting smile.

The leaders of the two halves of the expedition. Equals. She lifted her hand to touch his, and that was all it took.

They left the trail and ducked into a tight thicket of pine. They stopped to kiss, and it had been long enough since the last time that it felt strange to her. Tripping over a root Frank laughed under his breath, that quick secretive laugh which gave Maya a shiver, almost of fear. They sat on pine needles, rolled together like students necking in the woods. She laughed; she had always liked the quick approach, the way she could just knock a man down when she wanted to.

Well, they talked for a while in a jovial enough way, and even made love again before they left. But it wasn't quite the same as the first time, she found herself distracted. So much in sex was beyond rational analysis. Maya always felt things about her partners that she could not analyze or even express; but she always either liked what she felt or didn't, there was no doubt about that. And looking at Frank Chalmer's face after the first time, she had been sure that something wasn't right. It made her uneasy.

But she was amiable, affectionate; it would not do to be put off at such a moment, no one would forgive that. They got up and dressed and went back into Torus D, and ate dinner at the same table with some others, and that was when it made perfect sense to become more distant. But then in the days after their encounter, she was surprised and displeased to find herself putting him off a little bit, making excuses to avoid being alone with him. It was awkward, not what she had wanted at all. She would have preferred not to feel the way she did, and once or twice after that they went off alone again, and when he started things she made love with him again, wanting it to work, feeling that she must have made a mistake or been in a bad mood somehow. But it was always the same, there was always that little smirk of triumph, that I-got-you that she disliked so much, that moralistic Puritan double-standard dirtiness.

And so she avoided him even more, to keep from getting into the start situation; and quickly enough he caught the drift. One afternoon he asked to go for a walk in the biome, and she declined, claiming fatigue; and a staccato look of surprise passed over his face, and then it had closed up like a mask. She felt badly, because she couldn't even explain it to herself.

To try to make up for such an unreasonable withdrawal, she was friendly and forthright with him after that, as long as it was a safe situation. And once or twice she suggested, indirectly, that for her their encounters had been only a matter of sealing a friendship, something she had done with others as well. All this had to be conveyed between words, however, and it was possible he misunderstood; it was hard to say. After that first jolt of comprehension, he only seemed puzzled. Once, when she left a group just before it broke up, she had seen him give her a sharp glance; after

him, by being a good friend. She worked so hard at doing this that once, almost a month later, she miscalculated and went a little too far, to the point where he thought she was seducing him again. They had been part of a group, up late talking, and she had sat next to him, and afterwards he had clearly gotten the wrong impression, and walked with her around Torus D to the bathrooms, talking in the charming and affable way he had at this stage of things. Maya was vexed with herself; she didn't want to seem completely fickle, although at this point either way she went it would probably look that way. So she went along with him, just because it was easier, and because there was a part of her that wanted to make love. And so she did, upset with herself and resolved that this should be the last time, a sort of final gift that would hopefully make the whole incident a good memory for him. She found herself becoming more passionate than ever before, she really wanted to please him. And then, just before orgasm, she looked up at his face, and it was like looking in the windows of an empty house.

That was the last time.

ΔV . V for velocity, Δ for change. In space, this is the measure of the change in velocity required to get from one place to another-thus, a measure of the energy required to do it.

Everything is moving already. But to get something from the (moving) surface of the Earth into orbit around it, requires a minimum Δv of ten kilometers per second; to leave Earth's orbit and fly to Mars requires a minimum Δv of 3.6 kilometers per second; and to orbit Mars and land on it requires a Δv of about one kilometer per second. The hardest part is leaving Earth behind, for that is by far the deepest gravity well involved. Climbing up that steep curve of spacetime takes tremendous force, shifting the direction of an enormous inertia.

History too has an inertia. In the four dimensions of spacetime, particles (or events) have directionality; mathematicians, trying to show this, draw what they call "world lines" on graphs. In human affairs, individual world lines form a thick tangle, curling out of the darkness of prehistory and

Earth and Mars began to seem to Maya like a long series of cylinders, bent up at their joints at forty-five degree angles. There was a runner's course, a kind of steeplechase, around Torus C, and at each joint she slowed down in her run and tensed her legs for the the increased pressure of the two 22.5 degree bends, and suddenly she could see up the length of the next cylinder. It was beginning to seem a rather narrow world.

Perhaps in compensation, the people inside began to get somehow larger. The process of shedding their Antarctic masks continued, and every time someone displayed some new and hitherto unknown characteristic, it made all who noticed it feel that much freer; and this feeling caused more hidden traits to be revealed. One Sunday morning the Christians aboard, numbering a dozen or so, celebrated Easter in the bubble dome. It was April back home, though the Ares' season was midsummer. After their service they came down to the D dining hall for brunch. Maya, Frank, John, Arkady, and Sax were at a table, drinking cups of coffee and tea. The conversations among them and with other tables were densely interwoven, and at first only Maya and Frank heard what John was saying to Phyllis Boyle, the geologist who had conducted the Easter service.

"I understand the idea of the universe as a superbeing, and all its energy being the thoughts of this being. It's a nice concept. But the Christ story..." John shook his head.

"Do you really know the story?" Phyllis asked.

"I was brought up Lutheran in Minnesota," John replied shortly. "I went to confirmation class, had the whole thing drilled into me."

Which, Maya thought, was probably why he bothered to get into discussions like this. He had a displeased expression that Maya had never seen before, and she leaned forward a bit, suddenly concentrating. She glanced at Frank; he was gazing into his coffee cup as if in a reverie, but she was sure he was listening.

John said, "You must know that the gospels were written decades after the event, by people who never met Christ. And that there are other gospels which reveal a different Christ, gospels that were excluded from

or this perfectly clear-how it came about, what needs it fulfilled.

Phyllis regarded him with a small smile. "I don't know what to say to that, John. It's not a matter of history, after all. It's a matter of faith."

"Do you believe in Christ's miracles?"

"The miracles aren't what matter. It's not the church or its dogma that matters. It's Jesus himself that matters."

"But he's just a literary construct," John repeated doggedly. "Something like Sherlock Holmes, or the Lone Ranger. And you didn't answer my question about the miracles."

Phyllis shrugged. "I consider the presence of the universe to be a miracle. The universe and everything in it. Can you deny it?"

"Sure," John said. "The universe just is. I define a miracle as an action that clearly breaks known physical law."

"Like traveling to other planets?"

"No. Like raising the dead."

"Doctors do that every day."

"Doctors have never done that."

Phyllis looked non-plussed. "I don't know what to say to you, John. I'm kind of surprised. We don't know everything, to pretend we do is arrogance. The creation is mysterious. To give something a name like 'the big bang,' and then think you have an explanation-it's bad logic, bad thinking. Outside your rational scientific thought is an enormous area of consciousness, an area more important than science. Faith in God is part of that. And I suppose you either have it or you don't." She stood. "I hope it comes to you." She left the room.

After a silence, John sighed. "Sorry, folks. Sometimes it still gets to me."

"Whenever scientists say they're Christian," Sax said, "I take it to be an aesthetic statement."

"The church of the wouldn't-it-be-pretty-to-think-so," Frank said, still looking into his cup.

Sax said, "They feel we're missing a spiritual dimension of life that earlier generations had, and they attempt to regain it using the same

John stood and took his tray to the kitchen. The rest looked at each other in silence. It must have been, Maya thought, a really bad confirmation class. Clearly none of the others had known any more than her about this side of their easy-going hero. Who knew what they would learn next, about him or any of them?

News of the argument between John and Phyllis spread through the crew. Maya wasn't sure who was telling the story; neither John nor Phyllis seemed inclined to speak of it. Then she saw Frank with Hiroko, laughing as he told her something. Walking by them she heard Hiroko say, "You've got to admit Phyllis is right about that part-we don't understand the why of things at all."

Frank, then. Sowing discord between Phyllis and John. And (not a trivial point) Christianity was still a major force in America, and elsewhere. If word got around back home that John Boone was anti-Christian, it could give him problems. And that wouldn't be such a bad thing for Frank. Maya understood that; what she didn't understand, at first, was why Frank thought that anyone's opinion back home mattered to them anymore. It was only after long reflection that she came to see that he was right. They were all getting media play on Earth, but if you watched some of the news and features, it became clear that some were getting more than others, and this made them seem more powerful, and so they became more powerful in fact, by association. Among this group were Vlad and Ursula (whom she suspected were more than friends, now), Frank, Sax-all people who had been well known before their selection-and none so much as John. So that any diminution in Earth's regard for one of them, might have a kind of corresponding effect on their status within the Ares. This at any rate seemed to be Frank's operating principle.

###

It felt as if they were confined to the interior of a hotel with no exits, without even any balconies. The oppression of hotel life was growing; they had been inside now for four long months, but it was still less than half their trip. And none of their carefully designed physical surroundings or daily routines could hasten its end.

in fact, a big solar flare was an event they had simulated many times before. Everyone had tasks to perform, quite a few of them in a very short time, so they ran around the toruses, cursing their luck and trying not to get in each other's way. There was a lot to do, as battening down was complicated, and not very automated. In the midst of dragging plant trays into the plant shelter Janet yelled, "Is this one of Arkady's tests?"

"He says not!"

"Shit."

They had left Earth during the low point in the eleven-year sunspot cycle, specifically to reduce the chance of a flare like this occurring. And here it was anyway. They had about half an hour before the first radiation arrived, and no more than an hour after that the really hard stuff would follow.

Emergencies in space can be as obvious as an explosion or as intangible as an equation, but their obviousness has nothing to do with how dangerous they are. The crew's senses would never perceive the subatomic wind approaching them, and yet it was one of the worst things that could have happened. And everyone knew it. They ran through the toruses to get their bit of battening done-plants had to be covered or moved to protected areas, the chickens and pigs and pygmy cows and the rest of the animals and birds had to be herded into their own little shelters, seeds and frozen embryos had to be collected and carried along, sensitive electrical components had to be boxed or likewise carried along. When they were done with these high-speed tasks they yanked themselves up the spokes to the central shaft as fast as they could, and then flew down the central shaft tube to the storm shelter, which was directly behind the tube's aft end.

Hiroko and her biosphere team were the last ones in, banging through the hatch a full twenty-seven minutes after the initial alarm. They hurtled into the weightless space flushed and out of breath. "What's the reading? Has it started yet?"

"Not yet."

to counteract the spin of the ship, keeping the tub between the crew and the sun.

So they floated in a non-rotating space, while the curved roof of the tank rotated over them at its usual four rpm. It was a peculiar sight, which along with the weightlessness made some people begin to look thoughtful in a pre-seasick kind of way. These unfortunates congregated down at the end of the shelter where the lavatories were located, and to help them out visually, everyone else oriented themselves to the floor. The radiation was therefore coming up through their feet. Maya felt an impulse to keep her knees together. People floated in place, or put on velcro slippers to walk over the floor. They talked in low voices, instinctively finding their next-door neighbors, their working partners, their friends. Conversations were subdued, as if a cocktail party had been told that the hors d'oeuvres had been tainted.

John Boone rip-ripped his way to the computer terminals at the fore end of the room, where Arkady and Alex were monitoring the ship. He punched in a command, and the radiation data were suddenly displayed on the room's biggest screen. "Let's see how much we're getting cooked," he said brightly.

Groans. "Must we?" exclaimed Ursula.

"We might as well know," John said. "And I want to see how well this shelter works. The one on the Rust Eagle was about as strong as the bib you wear at the dentist's."

Maya smiled. It was a reminder, rare from John, that he had been exposed to much more radiation than any of the rest of them-about a hundred and sixty rem, as he explained now in response to someone's question. On Earth one caught a fifth of a roentgen equivalent man per year; orbiting Earth, still inside the protection of the Earth's magnetosphere, one took around thirty-five per year. So John had taken a lot of heat. And somehow that gave him the right, now, to screen the data if he wanted to.

Those who were interested-about sixty people-clumped behind him to watch the screen. The rest relocated at the far end of the tank with the people worrying about motion sickness, a group that definitely didn't want

amount flying through the rest of the ship! Billions of particles were penetrating the ship and colliding with the atoms of water and metal they were huddled behind; hundreds of millions were flying between these atoms and then through the atoms of their bodies, touching nothing, as if they were no more than ghosts. Still, thousands were striking atoms of flesh and bone. Most of those collisions were harmless; but in all those thousands, there were in all probability one or two (or three?) in which a chromosome strand was taking a hit, and kinking in the wrong way: and there it was. Tumor initiation, begun with just that typo in the book of the self. And years later, unless the victim's DNA luckily repaired itself, the tumor promotion that was a more or less unavoidable part of living would have its effect, and there would appear a bloom of Something Else inside: cancer. Leukemia, most likely; and, most likely, death.

So it was hard not to regard the figures unhappily. There were peaks in the readout, four per rotation, indicating the gaps between the four tanks surrounding them; the peaks spiked every few seconds, making a series of neat U's on the graph paper. Total shelter radiation appeared on another screen: 24.658 rems, 27.861, 29.004. "Like an odometer," Boone said calmly. He was gripping a rail with both hands and pulling himself back and forth, as if doing isometric exercises. Frank saw it and said, "John, what the hell are you doing?"

"Dodging," John said. He smiled at Frank's frown. "You know-moving target!"

People laughed at him. With the extent of the danger precisely charted on screens and graphs, they were beginning to feel less helpless. This was illogical, but naming was the power that made every human a scientist of sorts. And these were scientists by profession, with many astronauts among them as well, trained to accept the possibility of such a storm. All those mental habits began channeling their thoughts, and the shock of the event receded a bit. They were coming to terms with it.

Arkady went to a terminal and called up Beethoven's Pastoral Symphony, picking it up in the third movement, when the village dance is disrupted by storm. He turned up the volume, and they floated together in

whistled through. The French horn sang its serene air-clear.

People began to talk about other things, discussing the various business of the day that had been so rudely interrupted, or taking the opportunity to talk about other things. After a half hour or more, one of those conversations got louder; Maya didn't hear how it began, but suddenly Arkady said, very loudly and in English, "I don't think we should pay any attention to plans made for us back on Earth!"

Other conversations went silent, and people turned to look at him. He had popped up and was floating under the rotating roof of the chamber, where he could survey them all and speak like some mad flying spirit.

"I think we should make new plans," he said. "I think we should be making them now. Everything should be redesigned from beginning, with our own thinking expressed. It should extend everywhere, even to first shelters we build."

"Why bother?" Maya asked, annoyed at his grandstanding. "They're good designs." It really was irritating; Arkady often took center stage, and people always looked at her as if she were somehow responsible for him, as if it were her job to keep him from pestering them.

"Buildings are the template of a society," Arkady said.

"They're rooms," Sax Russell pointed out.

"But rooms imply the social organization inside them." Arkady looked around, pulling people into the discussion with his gaze. "The arrangement of a building shows what the designer thinks should go on inside. We saw that at the beginning of the voyage, when Russians and Americans were segregated into Torus D and B. We were supposed to remain two entities, you see. It will be same on Mars. Buildings express values, they have a sort of grammar, and rooms are the sentences. I don't want people in Washington or Moscow saying how I should live my life, I've had enough of that."

"What don't you like about the design of the first shelters?" John asked, looking interested.

"They are rectangular," Arkady said. This got a laugh, but he perservered: "Rectangular, the conventional shape! With work space

Everything is political, Arkady said at their backs. "Nothing more so than this voyage of ours. We are beginning a new society, how could it help but be political?"

"We're a scientific station," Sax said. "It doesn't necessarily have much politics to it."

"It certainly didn't last time I was there," John said, looking thoughtfully at Arkady.

"It did," Arkady said, "but it was simpler. You were an all-American crew, there on a temporary mission, doing what your superiors told you to do. But now we are an international crew, establishing a permanent colony. It's completely different."

Slowly people were drifting through the air toward the conversation, to hear better what was being said. Rya Jiminez said, "I'm not interested in politics," and Mary Dunkel agreed from the other end of the room: "That's one of the things I'm here to get away from!"

Several Russians replied at once. "That itself is a political position!" and the like. Alex exclaimed, "You Americans would like to end politics and history, so you can stay in a world you dominate!"

A couple of Americans tried to protest, but Alex overrode them: "It's true! The whole world has changed in last thirty years, every country looking at its function, making enormous changes to solve problems-all but United States. You have become the most reactionary country in the world."

Sax said, "The countries that changed had to because they were rigid before, and almost broke. The United States already had flex in its system, and so it didn't have to change as drastically. I say the American way is superior because it's smoother. It's better engineering."

This analogy gave Alex pause, and while he was thinking about it John Boone, who had been watching Arkady with great interest, said, "Getting back to the shelters. How would you make them different?"

Arkady said, "I'm not quite sure-we need to see the sites we build on, walk around in them, talk it over. It's a process I advocate, you see. But in general I think work space and living space should be mixed as much as is

grammatical that would say All equal. Yes?

"There's lots of prefab units already there," John said. "I'm not sure they could be adapted."

"They could if we wanted to do it."

"But is it really necessary? I mean, it's clear we're already a team of equals."

"Is it clear?" Arkady said sharply, looking around. "If Frank and Maya tell us to do something, are we free to ignore them? If Houston or Baikonur tell us to do something, are we free to ignore them?"

"I think so," John replied mildly.

This statement got him a sharp look from Frank. The conversation was breaking up into several arguments, as a lot of people had things to say, but Arkady cut through them all again:

"We have been sent here by our governments, and all of our governments are flawed, most of them disastrously. It's why history is such a bloody mess. Now we are on our own, and I for one have no intention of repeating all of Earth's mistakes just because of conventional thinking. We are the first Martian colonists! We are scientists! It is our job to think things new, to make them new!"

The arguments broke out again, louder than ever. Maya turned away and cursed Arkady under her breath, dismayed at how angry people were getting. She saw that John Boone was grinning. He pushed off the floor toward Arkady, came to a stop by piling into him, and then shook Arkady's hand, which action swung them both around in the air, in an awkward kind of dance. This gesture of support immediately set people to thinking again, Maya could see it on their surprised faces; along with John's fame he had a reputation for being moderate and low-keyed, and if he approved of Arkady's ideas, then it was a different matter.

"Goddammit, Ark," John said. "First those crazy problem runs, and now this-you're a wild man, you really are! How in the hell did you get them to let you on board this ship, anyway?"

Exactly my question, thought Maya.

"I lied," Arkady said.

was formed from the replies, but the judgements concerning what the answers meant were based on the earlier responses of a sample group of 2,600 white, married, middle class Minnesota farmers of the 1930s. Despite all subsequent revisions, the pervading bias created by the nature of that first test group was still deeply engrained in the test; or at least some of them thought so. "Minnesota!" Arkady shouted, rolling his eyes. "Farmers! Farmers from Minnesota! I tell you this now, I lied in answer to every single question! I answered exactly opposite to what I really felt, and this is what allowed me to score as normal!"

Wild cheers greeted this announcement. "Hell," John said, "I'm from Minnesota and I had to lie."

More cheers. Frank, Maya noted, was crimson with hilarity, incapable of speech, hands clutching his stomach, nodding, giggling, helpless to stop himself. She had never seen him laugh like that.

Sax said, "The test made you lie."

"What, not you?" Arkady demanded. "Didn't you lie too?"

"Well, no," Sax said, blinking as if the concept had never occurred to him before. "I told the truth to every question."

They laughed harder than ever. Sax looked startled at their response, but that only made him look funnier.

Someone shouted, "What do you say, Michel? How do you account for yourself?"

Michel Duval spread his hands. "You may be underestimating the sophistication of the RMMPI. There are questions which test how honest you are being."

This statement brought down a rain of questions on his head, a methodological inquisition. What were his controls? How did the testers make their theories falsifiable? How did they repeat them? How did they eliminate alternative explanations of the data? How could they claim to be scientific in any sense of the word whatsoever? Clearly a lot of them considered psychology a pseudoscience, and many had considerable resentment for the hoops they had been forced to jump through to get aboard. The years of competition had taken their toll. And the discovery of

ourselves such hairs?

Michel shrugged. "It's been healthy to talk about it. Now we realize we're more alike than we thought. No one has to feel they were unusually dishonest to get aboard."

"And you?" Arkady asked. "Did you present yourself as most rational and balanced psychologist, hiding the strange mind we have come to know and love?"

A small smile from Michel. "You're the expert in strange minds, Arkady."

Then the few still watching the screens called out. The radiation count had started to fall. After a while it slipped back to just a little above normal.

Someone returned the Pastoral to the moment of the horn call. The last movement of the symphony, "Glad and Grateful Feelings After the Storm," poured over the speaker system, and as they left the shelter and fanned out through the ship like dandelion seeds on a breeze, the beautiful old folk melody was broadcast throughout the Ares, elaborating itself in all its Brucknerian richness. While it played, they found that the ship's hardened systems had survived intact. The thicker walls of the farm and the forest biome had afforded the plants some protection, and although there would be some die-offs, and an entire crop they could not eat, the seed stocks were not harmed. The animals could not be eaten either, but presumably would give birth to a healthy next generation. The only casualties were some uncaptured songbirds from D's dining hall; they found a scattering of them dead on the floor.

As for the crew, the shelter's protection had shielded them from all but sixty-odd rem. That was the equivalent of two years of normal work in space, bad for a mere three hours; but it could have been worse. Outside the shelter it would have a lethal dose.

###

Six months inside a hotel, with never a walk outside. Inside it was late summer, and the days were long. Green dominated the walls and ceilings, and people went barefoot. Quiet conversations were nearly inaudible in the hum of machinery, the whoosh of ventilators. The ship seemed empty somehow, whole sections of it abandoned as the crew settled down to wait.

max chambers, their barrier tools lined with bright sunstrips. The multi-leveled floors were crowded with crops, many new since the storm. There was not enough space to feed the crew entirely on farm food, but Hiroko disliked that fact and struggled against it, converting storage rooms as they emptied out. Dwarf strains of wheat, rice, soy, and barley grew in stacked trays; above the trays were hanging rows of hydroponic vegetables, and enormous clear jars of green and yellow algae, used to help regulate the gas exchange.

Some days Maya did nothing but watch the farm team work. Hiroko and her assistant Iwao were always tinkering at the endless project of maximizing the closure of their biological life support system, and they had a crew of other regulars working on it: Raul, Rya, Gene, Evgenia, Andrea, Roger, Ellen, Bob, and Tasha. Success in the closure attempt was measured in K values, K representing closure itself. Thus for every substance they recycled,

$$K = I - e/E$$

where E was the rate of consumption in the system, e the rate of (incomplete) closure, and I a constant for which Hiroko, earlier in her career, had established a corrected value. The goal, $K=I-1$, was unreachable, but asymptotically approaching it was the farm biologists' favorite game, and more than that, critical to their eventual existence on Mars. So conversations about it could extend over days, spiraling off into complexities that no one really understood. In essence the farm team was already at their real work, which Maya envied; she was so sick of simulations!

Hiroko was an enigma to Maya. Aloof and serious, she always seemed absorbed in her work, and her team tended always to be around her, as if she was the queen of a realm that had nothing to do with the rest of the ship. Maya didn't like that, but there was nothing she could do about it. And something in Hiroko's attitude made it not so threatening; it was just a fact, the farm was a separate place, its crew a separate society. And it was

effectively impossible, and flying even halfway would usually win a game. But one day Hiroko came by on her way to check an experimental crop in the bubble dome, and after greeting them she crouched on the shelter hatch and jumped, and slowly floated the full length of the tunnel, rotating as she flew, and stopping herself at the bubble dome hatch with a single outstretched hand.

The players stared up the tunnel in stunned silence.

"Hey!" Rya called to Hiroko. "How did you do that?"

"Do what?"

They explained the game to her. She smiled, and Maya was suddenly certain she had already known the rules. "So how did you do it?" Rya repeated.

"You jump straight!" Hiroko explained, and disappeared into the bubble dome.

That night at dinner the story got around. Frank said to Hiroko, "Maybe you just got lucky."

Hiroko smiled. "Maybe you and I should total twenty jumps and see who wins."

"Sounds good to me."

"What'll we bet?"

"Money, of course."

Hiroko shook her head. "Do you really think money matters anymore?"

###

A few days later Maya floated under the curve of the bubble dome with Frank and John, looking ahead at Mars, which was now a gibbous orb the size of a dime.

"A lot of arguments these days," John remarked casually. "I hear Alex and Mary got into an actual fight. Michel says it's to be expected, but still..."

"Maybe we brought too many leaders," Maya said.

"Maybe you should have been the only one," Frank jibed.

"Too many chiefs?" said John.

Frank shook his head. "That's not it."

their DS and PS and messing up the Tard by blowing their brains out on it.

"Couldn't have that," John said.

Maya rolled her eyes. "You two must have gone to trade schools, eh?"

"The trick to avoiding this unpleasantness, they found, was to accept a certain percentage of students who were used to getting mediocre grades, but had distinguished themselves in some other way."

"Like having the nerve to apply to Harvard with mediocre grades?"

"-used to the bottom of the grade curve, and happy just to be at Harvard at all."

"How did you hear of this?" Maya asked.

Frank smiled. "I was one of them."

"We don't have any mediocrities on this ship," John said.

Frank looked dubious. "We do have a lot of smart scientists with no interest in running things. Many of them consider it boring. Administration, you know. They're glad to hand it over to people like us."

"Beta males," John said, mocking Frank and his interest in sociobiology. "Brilliant sheep." The way they mocked each other...

"You're wrong," Maya said to Frank.

"Maybe so. Anyway, they're the body politic. They have at least the power to follow." He said this as if the idea depressed him.

John, due for a shift on the bridge, said good-bye and left.

Frank floated over to Maya's side, and she shifted nervously. They had never discussed their brief affair, and it hadn't come up, even indirectly, in quite a while. She had thought about what to say, if it ever did; she would say that she occasionally indulged herself with men she liked. That it had been something done on the spur of the moment.

But he only pointed to the red dot in the sky. "I wonder why we're going."

Maya shrugged. Probably he meant not we, but I. "Everyone has their reasons," she said.

He glanced at her. "That's so true."

Frank shook his head. "No. I don't think the selfishness is in the genes. I think it's somewhere else." He reached out with a forefinger, and tapped her between the breasts—a solid tap on the sternum, causing him to drift back to the floor. Staring at her the whole while, he touched himself in the same place. "Good night, Maya."

###

A week or two later Maya was in the farm harvesting cabbages, walking down an aisle between long stacked trays of them. She had the room to herself. The cabbages looked like rows of brains, pulsing with thought in the bright afternoon light.

Then she saw a movement and looked to the side. Across the room, through an algae bottle, she saw a face. The glass of the bottle warped it: a man's face, brown-skinned. The man was looking to the side and didn't see her. It appeared he was talking to someone she couldn't see. He shifted, and the image of his face came clear, magnified in the middle of the bottle. She understood why she was watching so closely, why her stomach was clenched: she had never seen him before.

He turned and looked her way. Through two curves of glass their eyes met. He was a stranger, thin-faced and big-eyed.

He disappeared in a brown blur. For a second Maya hesitated, scared to pursue him; then she forced herself to run the length of the room and up the two bends of the joint, into the next cylinder. It was empty. She ran through three more cylinders before stopping. Then she stood there, looking at tomato vines, her breath rasping hard in her throat. She was sweating yet felt chilled. A stranger. It was impossible. But she had seen him! She concentrated on the memory, tried to see the face again. Perhaps it had been. . . but no. It had been none of the hundred, she knew that. Facial recognition was one of the mind's strongest abilities, it was amazingly accurate. And he had run away at the sight of her.

A stowaway. But that too was impossible! Where would he hide, how would he live? What would he have done in the radiation storm?

Had she begun to hallucinate, then? Had it come to that?

way this was more frightening than the incident itself, as it emphasized to her its impossibility. People would think she had gone mad. What other conclusion was there? How would he eat, where would he hide? No. Too many people would have to know, it really wasn't possible. But that face!

One night she saw it again in a dream, and woke up in a sweat. Hallucination was one of the symptoms of space breakdown, as she well knew. It happened fairly frequently during long stays in Earth orbit, a couple dozen incidences had been recorded. Usually people started by hearing voices in the ever-present background noise of ventilation and machinery, but a fairly common alternative was the sighting of a workmate who wasn't there, or worse yet of a doppelgänger, as if empty space had begun to fill with mirrors. Shortage of sensory stimuli was believed to cause the phenomena, and the Ares, with its long voyage, and no Earth to look at, and a brilliant (and some might say driven) crew, had been judged a potential hazard. This was one of the main reasons the ship's rooms had been given so much variety of color and texture, along with changing daily and seasonal weather. And still she had seen something that couldn't be there.

And now when she walked through the ship, it seemed to her that the crew was breaking up into small and private groups, groups which rarely interacted. The farm team spent almost all its time in the farms, even eating meals there on the floors, and sleeping (together, rumor had it) among the rows of plants. The medical team had its own suite of rooms and offices and labs in Torus B, and they spent their time in there, absorbed with experiments and observations and consultations with Earth. The flight team was preparing for MOI, running several simulations a day. And the rest were . . . scattered. Hard to find. As she walked around the toruses the rooms seemed emptier than ever before. The D dining hall was never full anymore. And then again in the separated clumps of diners that were there, she noticed arguments broke out fairly frequently, and were hushed with peculiar speed. Private spats, but about what?

Maya herself said less at table, and listened more. You could tell a lot about a society by what topics of conversation came up. In this crowd, the

accompanied pointed, inquisitive glances. Janet Bylieven would walk into the dining hall with Roger Calkins, and Frank would remark to John, in an undertone meant to reach Maya's ears, "Janet thinks we're a panmixia." Maya would ignore him, as she always did when he spoke in that sneery tone of voice; but later she looked up the word in a sociobiology lexicon, and found that a panmixia was a group where every male mated with every female.

The next day she looked at Janet curiously; she had had no idea. Janet was friendly, she leaned in at you as you talked, and really paid attention. And she had a quick smile. But... Well, the ship had been built to insure a lot of privacy. No doubt there was more happening than anyone could know.

And among these secret lives, might there not be another secret life, led in solitude, or in teamwork with some few among them, some small clique or cabal?

"Have you noticed anything funny lately?" she asked Nadia one day, at the end of their regular breakfast chat.

Nadia shrugged. "People are bored. It's about time to get there, I think."

Maybe that was all it was.

Nadia said, "Did you hear about Hiroko and Arkady?"

Rumors were constantly swirling about Hiroko. Maya found it distasteful, disturbing. That the lone Asian woman among them should be the focus of that kind of thing... dragon lady, mysterious orient. . . . Underneath the scientific rational surfaces of their minds, there were so many deep and powerful superstitions. Anything might happen, anything was possible.

Like a face seen through a glass.

And so she listened with a tight feeling in her stomach, as Sasha Yefremov leaned over from the next table and responded to Nadia's question by wondering if Hiroko were developing a male harem. That was nonsense; although an alliance of some sort between Hiroko and Arkady had an unsettling sort of logic to Maya, she was not sure why. Arkady was

charged with dust and creosote and static electricity. As if the god of war were really up there on that blood dot, waiting for them. The green wall panels inside the Ares were now flecked with yellow and brown, and the afternoon light was thick with sodium vapor's pale bronze.

People spent hours in the bubble dome, watching what none among them but John had seen before. The exercise machines were in constant use, the simulations performed with renewed enthusiasm. Janet took a swing through the toruses, sending back video images of all the changes in their little world; then she threw her glasses on a table, and resigned her post as reporter. "Look, I'm tired of being an outsider," she said. "Every time I walk into a room everyone shuts up, or starts preparing their official line. It's like I was a spy for an enemy!"

"You were," Arkady said, and gave her a big hug.

At first no one volunteered to take over her job. Houston sent messages of concern, then reprimands, then veiled threats. Now that they were about to reach Mars, the expedition was getting a lot more TV time, and the situation was about to "go nova," as mission control put it. They reminded the colonists that this burst of publicity would eventually reap the space program all kinds of benefits; the colonists had to film and broadcast what they were doing, to stimulate public support for the later Mars missions on which they were going to depend. It was their duty to transmit their stories!

Frank got on the screen and suggested that mission control could concoct their video reports out of footage from robot cameras. Hastings, head of Mission Control in Houston, was visibly infuriated by this response. But as Arkady said, with a grin that extended the realm of the question to everything: "What can they do?"

Maya shook her head. They was sending a bad signal, she knew; and revealing what the video reports had so far hidden, that the group was splintering into rival cliques. Which indicated Maya's own lack of control over the Russian half of the expedition. She was about to ask Nadia to take over the reporting job as a favor to her, when Phyllis and some of her friends in B torus volunteered for the job. Maya, laughing at the

Maya of Frank's authority either, which made things tense when it became known what they were working on.

Mission control's preflight plan called for the establishment of a base colony on the plains north of Ophir Chasma, the enormous northern arm of Valles Marineris. All the farm team was assigned to the base, and a majority of the engineers and medical people-altogether, around sixty of the hundred. The rest would be scattered on subsidiary missions, returning to the base camp from time to time. The largest subsidiary mission was to dock a part of the disassembled Ares on Phobos, and begin transforming that moon into a space station. Another smaller mission would leave the base camp and travel north to the polar cap, to build a mining system which would transport blocks of ice back to the base. A third mission was to make a series geological surveys, traveling all over the planet; a glamor assignment for sure. All the smaller groups would become semi-autonomous for periods of up to a year, so selecting them was no trivial matter; they knew well, now, how long a year could be.

Arkady and a group of his friends-Alex, Roger, Samantha, Edvard, Janet, Tatiana, Elena-requested all the jobs on Phobos. When Phyllis and Mary heard about it, they came to Maya and Frank to protest. "They're obviously trying to take over Phobos, and who knows what they'll do with it?"

Maya nodded, and she could see Frank didn't like it either. The problem was, no one else wanted to stay on Phobos; even Phyllis and Mary weren't clamoring to replace Arkady's crew, so it wasn't clear how to oppose him.

Louder arguments broke out when Ann Clayborne passed around her crew list for the geological survey. A lot of people wanted to join that one, and several of those left off her list said they were going on surveys whether Ann wanted them or not.

Arguments became frequent, and vehement. Almost everyone aboard declared themselves for one mission or another, positioning themselves for the final decisions. Maya felt that she was losing all control of the Russian contingent; she was getting furious at Arkady. In a general meeting she suggested sarcastically that they let the computer make the assignments.

Everyone already knew this, and the posted lists proved that there were fewer conflicts than it had seemed. "There are complaints about Arkady taking over Phobos," Frank said at the next public meeting. "But no one but him and his friends want that job. Everyone else wants to get down to the surface."

Arkady said, "In fact we should get hardship compensation."

"It's not like you to talk about compensation, Arkady," Frank said smoothly.

Arkady grinned and sat back down.

Phyllis wasn't amused. "Phobos will be a link between Earth and Mars, like the space stations in Earth orbit. You can't get from one planet to the other without them, they're what naval strategists call choke points."

"I promise to keep my hands off your neck," Arkady said to her.

Frank snapped, "We're all going to be part of the same village! Anything we do affects all of us! And judging by the way you're acting, dividing up from time to time will be good for us. I for one wouldn't mind having Arkady out of my sight for a few months."

Arkady bowed. "Phobos here we come!"

But Phyllis and Mary and their crowd still were not happy. They spent a lot of time conferring with Houston, and whenever Maya went into B torus, conversations seemed to cease, eyes followed her suspiciously-as if being Russian would automatically put her in Arkady's camp! She damned them for fools, and damned Arkady even more. He had started all this.

But in the end it was hard to tell what was going on, with a hundred people scattered in what suddenly felt like such a large ship. Interest groups, micropolitics; they really were fragmenting. One hundred people only, and yet they were too large a community to cohere! And there was nothing she or Frank could do about it.

###

One night she dreamed again of the face in the farm. She woke shaken, and was unable to fall back asleep; and suddenly everything seemed out of control. They flew through the vacuum of space inside a

feel something specific in the dense interference pattern of her emotions. When she blinked, little spherical teardrops floated out and away among the stars.

The lock door opened. John Boone floated in, saw her, grabbed the door handle to stop himself. "Oh, sorry. Mind if I join you?"

"No." Maya sniffed and rubbed her eyes. "What gets you up at this hour?"

"I'm often up early. And you?"

"Bad dreams."

"Of what?"

"I can't remember," she said, seeing the face in her mind.

He pushed off, floated past her to the dome. "I can never remember my dreams."

"Never?"

"Well, rarely. If something wakes me up in the middle of one, and I have time to think about it, then I might remember it, for a little while anyway."

"That's normal. But it's a bad sign if you never remember your dreams at all."

"Really? What's it a symptom of?"

"Of extreme repression, I seem to recall." She had drifted to the side of the dome; she pushed off through the air, stopped herself against the dome next to him. "But that may be Freudianism."

"In other words something like the theory of phlogiston."

She laughed. "Exactly."

They looked out at Mars, pointed out features to each other. Talked. Maya glanced at him as he spoke. Such bland, happy good looks; he really was not her type. In fact she had taken his cheeriness for a kind of stupidity, back at the beginning. But over the course of the voyage she had seen that he was not stupid.

"What do you think of all the arguments about what we should do up there?" she asked, gesturing at the red stone ahead of them.

"I don't know."

dome away from each other.

Maya, surprised at herself, arrested her motion against the floor. She turned and saw John coming to a halt across the dome, landing against the floor. He looked at her with a smile, caught a rail and launched himself into the air, across the domed space on a course aimed at her.

Instantly Maya understood, and forgetting completely her resolution to avoid this kind of thing, she pushed off to intercept him. They flew directly at each other, and to avoid a painful collision had to catch and twist in mid-air, as if dancing. They spun, hands clasped, spiraling up slowly toward the dome. It was a dance, with a clear and obvious end to it, there to reach whenever they liked: whew! Maya's pulse raced, and her breath was ragged in her throat. As they spun they tensed their biceps and pulled together, as slowly as docking spacecraft, and kissed.

With a smile John pushed down from her, sending her flying to the dome, and him to the floor, where he caught and crawled to the chamber's hatch. He locked it.

Maya let her hair loose and shook it out so it floated around her head, across her face. She shook it wildly and laughed. It was not as though she felt on the verge of any great or overmastering love; it was simply going to be fun; and that feeling of simplicity was. . . . She felt a wild surge of lust, and pushed off the dome toward John. She tucked into a slow somersault, unzipping her jumper as she spun, her heart pounding like tympanis, all her blood rushing to her skin, which tingled as if thawing as she undressed, banged into John, flew away from him after an overhasty tug at a sleeve; they bounced around the chamber as they got their clothes off, miscalculating angles and momentums until with a gentle thrust of the big toes they flew into each other and met in a spinning embrace, and floated kissing among their floating clothes.

###

In the days that followed they met again. They made no attempt to keep the relationship a secret; so very quickly they were a known item, a public couple. Many aboard seemed taken aback by the development; and one morning walking into the dining hall, Maya caught a swift glance from

One night, lying in bed thinking about it (thinking of wandering over to John's room) she wondered if that was why they had gotten together: not from love, she still did not love him, she felt no more than friendship for him, charged by lust that was strong but impersonal-but because it was, in fact, a very useful match. Useful to her-but she swerved from that thought, concentrated on the match's usefulness to the expedition as a whole. Yes, it was politic. Like feudal politics, or the ancient comedies of spring and regeneration. And it felt that way, she had to admit; as if she were acting in response to imperatives stronger than her own desires, acting out the desires of some larger force. Of, perhaps, Mars itself. It was not an unpleasant feeling.

As for the idea that she might have gained leverage over Arkady; or Frank; or Hiroko.... Well, she successfully avoided thinking about that. It was one of Maya's talents.

###

Blooms of yellow and red and orange spread across the walls. Mars was now the size of the moon in Earth's sky. It was time to harvest all their effort; only a week more, and they would be there.

There was still tension over the unsolved problems of landfall assignments. And now Maya found it less easy than ever to work with Frank; it was nothing obvious, but it occurred to her that he did not dislike their inability to control the situation, because the disruptions were being caused more by Arkady than anyone else, and so it looked like it was more her fault than his. More than once she left a meeting with Frank and went to John, hoping to get some kind of help. But John stayed out of the debates, and threw his support behind everything that Frank proposed. His advice to Maya in private was fairly acute, but the trouble was he liked Arkady, and disliked Phyllis; so often he recommended to her that she support Arkady, apparently unaware of the way this tended to undercut her authority among the other Russians. She never pointed this out to him, however. Lovers or not, there were still areas she didn't wish to discuss with him, or with anyone else.

there's a lot of places to hide there. And he could have taken shelter with the animals during the radiation storm."

"They got a lot of rem!"

"But he could have gotten behind their water supply. A little one-man shelter wouldn't be too hard to set up."

John still hadn't gotten over the idea of it. "A whole year in hiding!"

"It's a big ship. It could be done, right?"

"Well, I suppose so. Yeah, it could, I guess. But why?"

Maya shrugged. "I have no idea. Someone who wanted on, who didn't make the selection. Someone who had a friend, or friends..."

"Still! I mean, a lot of us had friends who wanted to come. That doesn't mean that. . . ."

"I know, I know."

They talked about it for most of an hour, discussing the possible reasons, the methods that could have been used to slip a passenger on board, to hide him, and so on. And then Maya suddenly noticed that she felt much better; that she was, in fact, in a wonderful mood. John believed her! He didn't think she had gone crazy! She felt a wash of relief and happiness, and threw her arms around him. "It's so good to be able to talk to you about this!"

He smiled. "We're friends, Maya. You should have brought it up before."

"Yes."

###

The bubble dome would have been a wonderful place to view their final approach to Mars, but they were going to be aerobraking to reduce speed, and the dome would be behind the heat shield that they now deployed. There would be no view.

Aerobraking saved them from the necessity of carrying the enormous amount of fuel it would have taken to slow down, but it was an extremely precise operation, and therefore dangerous. They had a leeway of less than a millisecond of arc, and so several days before MOI the navigation team began to tweak their course with small burns on an almost hourly

bronze. On the bridge she would check with Mary or Raul or Marina, or someone else in navigation; everything still on course. They were approaching Mars so quickly it seemed they could see it expanding on the screens.

They had to miss the planet by thirty kilometers, or about one ten-millionth of the distance they had traveled. No problem, Mary said, with a quick glance at Arkady. So far they were on the Mantra Path, and hopefully none of his mad problems would crop up.

The crew members not involved with navigation worked to batten down, changing the layout of the farm especially, preparing everything for the torque and bumps that two and half gee were sure to bring. Some of them got to go out on EVAs, to deploy subsidiary heat shields and the like. There was a lot to do; and yet the days seemed long anyway.

###

It was going to happen in the middle of the night, and so that evening all the lights stayed on, and no one went to bed. Everyone had a station-some on duty, most of them only waiting it out. Maya sat in her chair on the bridge, watching the screens and the monitors, thinking that they looked just like they would if it were all a simulation in Baikonur. Could they really be going into orbit around Mars?

They could. The Ares hit Mars's thin high atmosphere at forty thousand kilometers per hour, and instantly the ship was vibrating heavily, Maya's chair shaking her fast and hard, and there was a faint low roar, as if they flew through a blast furnace-and it looked like that too, because the screens were bursting with an intense pink-orange glow. Compressed air was bouncing off the heat shields and blazing past all the exterior cameras, so that the whole bridge was tinged the color of Mars. Then gravity returned with a vengeance; Maya's ribs were squeezed so hard that she had trouble breathing, and her vision was blurred. It hurt!

They were plowing through the thin air at a speed and height calculated to put them into what aerodynamicists call transitional flow, a state halfway between free molecular flow and continuum flow. Free molecular flow would have been the preferred mode of travel, with the air that struck the

four hundred pounds apiece, which was something Arkady had never been able to simulate very well. In the real world, Maya thought grimly, at the moment when they were most vulnerable to danger, they were also most helpless to deal with it.

But as fate would have it, Martian stratospheric weather was stable, and they remained on the Mantra Path. Which in actuality turned out to be a roaring, shuddering, breath-robbing eight minutes. No hour Maya could remember had lasted as long. Sensors showed that the main heat shield had risen to six hundred degrees Kelvin-

And then the vibration stopped. The roar ended. They had skipped out of the atmosphere, after skidding around a quarter of the planet. They had decelerated by some twenty thousand kilometers an hour, and the heat shield's temperature had risen to seven hundred and ten degrees Kelvin, very near its limit. But the method had worked. All was still. They floated, weightless again, held down by their chair straps. It felt as if they had stopped moving entirely, as if they were floating in pure silence.

Unsteadily they unstrapped themselves, floated like ghosts around the cool air of the rooms, an airy faint roaring sounding in their ears, emphasizing the silence. They were talking too loudly, shaking each others' hands. Maya felt dazed, and she couldn't understand what people were saying to her; not because she couldn't hear them, but because she wasn't paying attention.

###

Twelve weightless hours later their new course led them to a periapsis thirty-five thousand kilometers from Mars. There they fired the main rockets for a brief thrust, increasing their speed by about a hundred kilometers an hour; after that they were pulled toward Mars again, carving an ellipse that would bring them back to within five hundred kilometers of the surface. They were in martian orbit.

Each elliptical orbit of the planet took around a day. Over the next two months, the computers would control burns that would gradually circularize their course just inside the orbit of Phobos. But the landing parties were

the surrounding countryside, a rust color broken by black shadows. But both the light and dark colors were just a shade away from the omnipresent rusty-orangish-red, which was the color of every peak, crater, canyon, dune, and even the curved slice of the dust-filled atmosphere, visible high above the bright curve of the planet. Red Mars! It was transfixing, mesmerizing. Everyone felt it.

###

They spent long hours working, and at last it was real work. The ship had to be partially disassembled. The main body would be eventually parked in orbit near Phobos, and used as an emergency return vehicle. But twelve tanks from the outer lengths of the hub shaft had only to be disconnected from the Ares and prepped to become planetary landing vehicles, which would take the colonists down in groups of ten. The first lander was scheduled to descend as soon as it was decoupled and prepped; so they worked in round-the-clock shifts, spending a lot of time in EVA. They pulled in to the dining halls tired and ravenous, and conversations were loud; the ennui of the voyage seemed forgotten. One night Maya floated in the bathroom getting ready for bed, feeling stiffened muscles that she hadn't heard from in months. Around her Nadia and Sasha and Yeli Zudov were chattering away, and in the warm wash of voluble Russian it suddenly occurred to her that everyone was happy-they were in the last moment of their anticipation, an anticipation that had lain in their hearts for half a lifetime, or ever since childhood-and now suddenly it had bloomed below them like a child's crayon drawing of Mars, growing huge then small, huge then small, and as it yo-yoed back and forth it loomed before them in all its immense potential: tabula rasa, blank slate. A blank red slate. Anything was possible, anything could happen-in that sense they were, in just these last few days, perfectly free. Free of the past, free of the future, weightless in their own warm air, floating like spirits about to invest a material world. . . . In the mirror Maya caught sight of the toothbrush-distorted grin on her face, and grabbed a railing to hold her position. It occurred to her that they might never be so happy again. Beauty was the promise of happiness, not happiness itself; and the

many little groups now, keeping their own council... What had happened to that brief moment of happiness? Maya blamed it mostly on Arkady. He had opened Pandora's box; if not for him and his talk, would the farm group have drawn so close around Hiroko? Would the medical team have kept such close council? She didn't think so.

She and Frank worked hard to reconcile differences and forge a consensus, to give them the feeling they were still a single team. It involved long conferences with Phyllis and Arkady, Ann and Sax, Houston and Baikonur. In the process a relationship developed between the two leaders that was even more complex than their early encounters in the park; though that was part of it; Maya saw now, in Frank's occasional flashes of sarcasm, of resentment, that he had been bothered by the incident more than she had thought at the time. But there was nothing to be done about it now.

In the end the Phobos mission was indeed given to Arkady and his friends, mainly because no one else wanted it. Everyone was promised a spot on a geological survey if they wanted one; and Phyllis and Mary and the rest of the "Houston crowd" were given assurances that the construction of base camp would go according to the plans made in Houston. They intended to work at the base to see that it happened that way. "Fine, fine," Frank snarled at the end of one of these meetings. "We're all going to be on Mars, do we really have to fight like this over what we're going to do there?"

"That's life," Arkady said cheerfully. "On Mars or not, life goes on."

Frank's jaw was clenched. "I came here to get away from this kind of thing!"

Arkady shook his head. "You certainly did not! This is your life, Frank. What would you do without it?"

###

One night shortly before the descent, they gathered and had a formal dinner for the entire hundred. Most of the food was farm-grown: pasta, salad, and bread, with red wine from storage, saved for a special occasion.

a scientist, I am a scientist!" He put a hand to his forehead, in the universal mocking gesture of the prima donna. "No. When you say that, you are only saying, 'I do not wish to think about complex systems!' Which is not really worthy of true scientists, is it?"

"The Antarctic is governed by a treaty because no one lives there except in scientific stations," Maya said irritably. To have their final dinner, their last moment of freedom, disrupted like this!

"True," Arkady said. "But think of the result. In Antarctica, no one can own land. No one country or organization can exploit the continent's natural resources, without the consent of every other country. No one can claim to own those resources, or take them and sell them to other people, so that some profit from them while others pay for their use. Don't you see how radically different that is from the way the rest of the world is run? And this is the last area on Earth to be organized, to be given a set of laws. It represents what all governments working together feel instinctively is fair, revealed on land free from claims of sovereignty, or really from any history at all. It is, to say it plainly, Earth's best attempt to create just property laws! Do you see? This is the way entire world should be run, if only we could free it from the straitjacket of history!"

Sax Russell, blinking mildly, said, "But Arkady, since Mars is going to be ruled by a treaty based on the old Antarctic one, what are you objecting to? The Outer Space Treaty states that no country can claim land on Mars, no military activities are allowed, and all bases are open to inspection by any country. Also no martian resources can become the property of a single nation-the UN is supposed to establish an international regime to govern any mining or other exploitation. If anything is ever done along that line, which I doubt will happen, then it is to be shared among all the nations of the world." He turned a palm upward. "Isn't that what you're agitating for, already achieved?"

"It's a start," Arkady said. "But there are aspects of that treaty you haven't mentioned. Bases built on Mars will belong to the countries that build them, for instance. We will be building American and Russian bases, according to this provision of the law. And that puts us right back into the

quickly. "Our own well-being depends on ignoring it."

This view was more popular than his others, and several people said so.

"But if you're willing to disregard one article," Arkady pointed out, "you should be willing to disregard the rest. Right?"

There was an uncomfortable pause.

"All these changes will happen inevitably," Sax Russell said with a shrug. "Being on Mars will change us in an evolutionary way."

Arkady shook his head vehemently, causing him to spin a little in the air over the table. "No, no, no, no! History is not evolution! It is a false analogy! Evolution is a matter of environment and chance, acting over millions of years. But history is a matter of environment and choice, acting within lifetimes, and sometimes within years, or months, or days! History is Lamarckian! So that if we choose to establish certain institutions on Mars, there they will be! And if we choose others, there they will be!" A wave of his hand encompassed them all, the people seated at the tables, the people floating among the vines: "I say we should make those choices ourselves, rather than having them made for us by people back on Earth. By people long dead, really."

Phyllis said sharply, "You want some kind of communal utopia, and it's not possible. I should think Russian history would have taught you something about that."

"It has," Arkady said. "Now I put to use what it has taught me."

"Advocating an ill-defined revolution? Formenting a crisis situation? Getting everyone upset and at odds with each other?"

A lot of people nodded at this, but Arkady waved them away. "I decline to accept blame for everyone's problems at this point in the trip. I have only said what I think, which is my right. If I make some of you uncomfortable, that is your problem. It is because you don't like the implications of what I say, but can't find grounds to deny them."

"Some of us can't understand what you say," Mary exclaimed.

"I say only this!" Arkady said, staring at her bug-eyed: "We have come to Mars for good. We are going to make not only our homes and our food, but also our water and the very air we breathe-all on a planet that has none

###

No one ventured a rebuttal to that; Arkady at full throttle was pretty much unopposable, and a lot of them were genuinely provoked by what he had said, and needed time to think. Others were simply disgruntled, but unwilling to cause too much of a fuss at this particular dinner, which was supposed to be a celebration. It was easier to roll one's eyes, and drink to the toast. "To Mars! To Mars!" But as they floated around after finishing dessert, Phyllis was disdainful. "First we have to survive," she said. "With dissension like this, how good will our chances be?"

Michel Duval tried to reassure her. "A lot of these disagreements are symptoms of the flight. Once on Mars, we'll pull together. And we have more than just what we brought on the Ares to help us-we'll have what the unmanned landers have brought already, shipments of equipment and food all over the surface and the moons. All that's there for us. The only limit will be our own stamina. And this voyage is part of that-it's a kind of preparation, a test. If we fail this part, we won't even get to try on Mars."

"Exactly my point!" Phyllis said. "We are failing in this."

Sax stood, looking bored, and pushed off toward the kitchen. The hall was filled with the seashell roar of many small discussions, some of them acrimonious in tone. A lot of people were angry at Arkady, clearly; and others were angry at them for getting upset.

Maya followed Sax into the kitchen. As he cleaned his tray he sighed. "People are so emotional. Sometimes it seems like I'm stuck in an endless performance of the play No Exit."

"That's the one where they can't get out of a little room?"

He nodded. "Where hell is other people. I hope we don't prove the hypothesis."

###

A few days later the landers were ready. They would descend over a period of five days; only the Phobos team would stay in what was left of the Ares, guiding it to its near-docking with the little moon. Arkady, Alex, Dmitri, Roger, Samantha, Edvard, Janet, Raul, Marina, Tatiana, and Elena

moment came, that she was only going through another simulation. She wondered if she would ever escape that feeling, if being on Mars would be enough to end it. It would be worth it just for that: to make her feel real for once! She settled into her chair.

A few sleepless hours later she was joined by Sax, Vlad, Nadia, and Ann. Her companions belted in, and they ran through the check-out together. Toggles were flipped, there was a countdown; and their rockets fired. The lander drifted away from the Ares. Its rockets fired again. They fell toward the planet. They hit the top of the atmosphere, and their single trapezoidal window became a blaze of Mars-colored air. Maya, vibrating with the craft, stared up at it. She felt tense and unhappy, focused backward rather than forward, thinking of everyone still on the Ares; and it seemed to her that they had failed, that the five of them in the lander were leaving behind a group in disarray. Their best chance for creating some kind of concord had passed, and they had not succeeded; the momentary flash of happiness she had felt while brushing her teeth had been just that, a flash. She had failed, then. They were going their separate ways, splintered by their beliefs, and even after two separate years of enforced togetherness they were, like any other human group, no more than a collection of strangers. The die was cast.

Part Three The Crucible

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It formed with the rest of the solar system, around five billion years ago. That's fifteen million human generations. Rocks banging together in space, and then coming back and holding together, all because of the mysterious force we call gravity. That same mysterious warp in the weft of things caused the pile of rocks, when it was big enough, to crush in on its center, until the heat of the pressure melted the rock. Mars is small but heavy, with

straddling its spine, Ascraeus Mons, Pavonis Mons, and Arsia Mons, and off on its northwest edge, Olympus Mons, the tallest mountain in the solar system, three times the height of Everest, one hundred times the mass of Mauna Loa, the Earth's largest volcano.

So the Tharsis Bulge was the most important factor in shaping the surface of Mars. The other major factor was meteor fall. In the Noachian Age, three to four billion years ago, meteors were falling on Mars at a tremendous rate, millions of them, and thousands of them planetesimals, rocks as big as Vega or Phobos. One of the impacts left behind Hellas Basin, 1600 kilometers in diameter, the largest obvious crater in the solar systems; although Daedalia Planum appears to be the remains of an impact basin 4500 kilometers across. Those are big; but then there are areologists who believe that the entire northern hemisphere of Mars is an ancient impact basin.

These big impacts created explosions so cataclysmic that it is hard to imagine them; ejecta from them ended up on the Earth and the Moon, and as asteroids in Trojan orbits; some areologists think that the Tharsis bulge started because of the Hellas impact; others believe that Phobos and Deimos are ejecta. And these were only the largest impacts. Smaller stones fell every day, so that oldest surfaces on Mars are saturated with cratering, the landscape a palimpsest of newer rings obscuring older ones, with no patch of land untouched. And each of these impacts released explosions of heat that melted rock; elements were broken out of their matrix and fired away in the form of hot gases, liquids, new minerals. This and the outgassing from the core produced an atmosphere, and lots of water; there were clouds, storms, rain and snow, glaciers, streams, rivers, lakes, all scouring the land, all leaving unmistakable marks of their passage-flood channels, stream beds, shorelines, every kind of hydrologic hieroglyphic.

But all that went away. The planet was too small, too far from the sun. The atmosphere froze and fell to the ground. Carbon dioxide sublimed to form a thin new atmosphere, while oxygen bonded to rock, and turned it red. The water froze, and over the ages seeped down through the

winter's log hood. The polar caps therefore thickened, and their weight drove the ice underground, until the visible ice was only the tip of two world-topping lenses of underground permafrost, lenses ten and then a hundred times the visible caps' volume. While back down toward the equator, new aquifers were being filled from below, by outgassing from the core; and some of the old aquifers were refilling.

And so this slowest of cycles approached its second round. But as the planet was cooling, all of it happened more and more slowly, in a long ritard like a clock winding down. The planet settled into the shape we see. But change never stops; the ceaseless winds carved the land, with dust that grew finer and finer; and the eccentricities of Mars's orbit meant that the southern and northern hemispheres traded the cold and warm winters in a 51,000 years cycle, so that the dry ice cap and the water ice cap reversed poles. Each swing of this pendulum laid down a new stratum of sand, and the troughs of new dunes cut through older layers at an angle, until the sand around the poles lay in a stippled cross-hatching, in geometrical patterns like Navajo sand paintings, banding the whole top of the world.

The colored sands in their patterns, the fluted and scalloped canyon walls, the volcanoes rising right through the sky, the rubbled rock of the chaotic terrain, the infinity of craters, ringed emblems of the planet's beginning. . . . Beautiful, or harsher than that: spare, austere, stripped down, silent, stoic, rocky, changeless. Sublime. The visible language of nature's mineral existence.

Mineral; not animal, nor vegetable, nor viral. It could have happened but it didn't. There was never any spontaneous generation out of the clays or the sulphuric hot springs; no spore falling out of space, no touch of a god; whatever starts life (for we do not know), it did not happen on Mars. Mars rolled, proof of the otherness of the world, of its stony vitality.

And then, one day. . . .

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She was out away from the lander. The ground was a dark rusty orange, covered with an even litter of rocks the same color, although some of the rocks showed tints of red or black or yellow. To the east stood a number of rocket landing vehicles, each one a different shape and size, with the tops of more sticking over the eastern horizon. All of them were crusted the same red-orange as the ground: it was an odd, thrilling sight, as if they had stumbled upon a long-abandoned alien spaceport. Parts of Baikonur would look like this, in a million years.

She walked to one of the nearest landing vehicles, a freight container the size of a small house, set on a skeletal four-legged rocket assembly. It looked like it had been there for decades. The sun was overhead, too bright to look at even through her faceplate; it was hard to judge through the polarization and other filters, but it seemed to her that the daylight was much like that on Earth, as far as she could remember. A bright winter's day.

She looked around again, trying to take it in. They stood on a gently bumpy plain, covered with small sharp-edged rocks, all half-buried in dust. Back to the west the horizon was marked by a small flat-topped hill. It might be a crater rim, it was hard to say. Ann was already halfway there, still quite a large figure; the horizon was closer than seemed right, and Nadia paused to take note of that, suspecting that she would soon become accustomed to it, and never notice. But it was not Earthlike, that strangely close horizon, she saw that clearly now. They stood on a smaller planet.

She made a concerted effort to recall Earth's gravity, wondering that it should be so hard. Walking in the woods, over tundra, on the river ice in winter. . . and now: step, step. The ground was flat, but one had to thread a course between the ubiquitous rocks; there was no place on Earth that she knew of where they were distributed so copiously and evenly. Take a jump! She did, and laughed; even with her suit on she could tell she was lighter. She was just as strong as ever, but weighed only thirty kilos! And the forty kilos of the suit. . . well, it threw her off balance, that was true. It made her feel that she had gone hollow. That was it: her center of gravity was gone, her weight had been shifted out to her skin, to the outside of her

the bare fingers, wow! Around 215° Kelvin, she recalled, or -90 Centigrade; colder than Antarctica, colder than Siberia at its worst. Her fingertips were numb. They would need better gloves to be able to work, gloves fitted with heating elements, like their boot soles. That would make the gloves thicker and less flexible. She'd have to get her finger muscles back into shape.

She had been laughing. She stood and walked to another freight drop, humming "Royal Garden Blues." She climbed the leg of the next drop and rubbed the crust of red dirt off an engraved manifest on the side of the big metal crate. One John Deere/Volvo Martian bulldozer, hydrazine-powered, thermally protected, semi-autonomous, fully programmable. Prostheses and spare parts included.

She felt her face stretched in a big grin. Backhoes, front loaders, bulldozers, tractors, graders, dump trucks; construction supplies and materials of every kind; air miners to filter and collect chemicals from the atmosphere; little factories to render these chemicals into other chemicals; other factories to combine those chemicals; a whole commissary, everything they were going to need, all at hand in scores of crates scattered over the plain. She began to hop from one lander to the next, taking stock. Some of them had obviously hit hard, some had their spider legs collapsed, others their bodies cracked, one was even flattened into a pile of smashed boxes, half-buried in dust; but these were just another kind of opportunity, the salvage and repair game, one of her favorites! She laughed aloud, she was a bit giddy, she noticed the comm light on her wrist console blinking; she switched to the common band and was startled by Maya and Vlad and Sax all talking at once, "Where's Ann, you women get back here, hey Nadia, come help us get this damned habitat online, we can't even get the door open!"

She laughed.

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The habitats were scattered like everything else, but they had landed near one that they knew was functional; it had been turned on from orbit some days before, and run through a complete check. Unfortunately the

through door after door, and the oddest feeling suddenly came over her. things seemed out of place. The lights were on, some of them blinking; and down at the far end of the hall, a door was swinging slightly back and forth on its hinges.

Obviously the ventilation. And the shock of the landing probably had disarranged things slightly. She shook off the feeling, and went back to greet the others.

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By the time everyone had landed and walked across the stony plain (stopping, stumbling, running, staring off at the horizon, spinning slowly, walking again), and had entered into the three functioning habitats, and gotten out of their EVA suits, and put them away, and checked out the habitats, and eaten a bit, talking it all over the whole while, night had fallen. They continued working on the habitats and talking through most of that night, too excited to fall asleep; then most of them slept in snatches until dawn, when they woke and suited up and went out again, looking around and checking manifests and running machines through checks. Eventually they noticed they were famished, and went back in to jam down a quick meal; and then it was night again!

And that was what it was like, for several days; a wild swirl of time passing. Nadia would wake to the bip of her wrist console, and eat a quick breakfast looking out the habitat's little east window: dawn stained the sky rich berry colors for a few minutes, before shifting rapidly through a series of rosy tones to the thick pink-orange of daytime. All over the floor of the habitat her companions slept, on mattresses that would fold up against the wall during the day. The walls were beige, tinted orange by the dawn. The kitchen and living room were tiny, the four toilet rooms no more than closets. Ann would stir as the room lightened, and go to one of the four toilets. John was already in the kitchen, moving around quietly. Conditions were so much more crowded and public than they had been on the Ares that some of them were having trouble adjusting; every night Maya complained she couldn't sleep in such a crowd, but there she was, mouth

gave the wearer a lot more freedom of movement than a pressurized spacesuit would have. Walkers also had the very significant advantage of being fail-operational; only the hard helmet was airtight, so if you ripped a hole at knee or elbow you would have a badly bruised and frozen patch of skin, but would not suffocate and die within minutes.

Getting into a walker, however, was a workout in itself. Nadia wriggled the pants over her long underwear, then the jacket, and zipped the two sections of the suit together. After that she jammed into big thermal boots, and locked their topings to the suit's ankle rings; pulled on gloves, and locked the wristrings; put on a fairly standard hard helmet, and locked it to the suit's neck ring; then shouldered into an airtank backpack, and linked its air tubes to her helmet. She breathed hard a few times, tasting the cool oxygen-nitrogen in her face. The walker's wristpad indicated that all the seals were good; and she followed John and Samantha into the lock. They closed the inner door; the air was sucked back into containers; John unlocked the outer door. The three of them stepped outside.

It was a thrill every morning to step out onto that rocky plain, with the early morning sun casting long black shadows to the west, and the various small knolls and hollows revealed clearly. There was usually a wind from the south, and loose fines moved in a sinuous flow over the ground, so that the rocks sometimes seemed to creep. Even the strongest of these winds could scarcely be felt against an outstretched hand, but they hadn't yet experienced one of the storm winds; at five hundred kilometers per hour they were pretty sure to feel something. At twenty, nearly nothing.

Nadia and Samantha walked over to one of the little rovers they had uncanted, and climbed in. Nadia drove the rover across the plain to a tractor they had found the day before, about a kilometer to the west. The morning cold cut through her walker in a diamond pattern, as the result of the X weave of the heating filaments in the suit material. A strange sensation, but she had been colder in Siberia many a time, and she had no complaints.

They came to the big lander and got out. Nadia picked up a drill with a Phillips screwdriver bit, and started dismantling the crate on top of the

The stacked crate walls made a ramp to drive the tractor on the lander, they didn't look strong enough, but that was the gravity again. Nadia had turned on the tractor's heating system as soon as she could reach it, and now she climbed into the cab and tapped a command into its autopilot, feeling that it would be best to let the thing descend the ramp on its own, with her and Samantha watching from the side, just in case the ramp was more brittle in the cold than expected, or otherwise unreliable. She still found it almost impossible to think in terms of martian gee, to trust the designs that took it into account. The ramp just looked too flimsy!

But the tractor rolled down without incident, and stopped on the ground: eight meters long, royal blue, with wire mesh wheels taller than they were. They had to climb a short ladder into the cab. The crane prosthesis was already attached to the mount on the front end, and that made it easy to load the tractor with the winch, the sandbagger, the boxes of spare parts, and finally the crate walls. When they were done, the tractor looked as overloaded and topheavy as a steam calliope; but the gee made it only a matter of balance. The tractor itself was a real pig, with four thousand horsepower, a wide wheelbase, and wheels big as tracks. The hydrazine motor had pick-up even worse than diesel, but it was like the ultimate first gear, completely inexorable. They took off and rolled slowly toward the trailer park and there she was, Nadezhda Cherneshevsky, driving a Mercedes-Benz across Mars! She followed Samantha to the sorting lot, feeling like a queen.

And that was the morning. Back into the habitat, helmet and tank off, a quick bite in walker and boots. With all that running around they were famished.

After lunch they went back out in the Mercedes-Benz, and used it to haul a Boeing air miner to an area east of the habitats, where they were going to gather all the factories. The air miners were big metal cylinders, somewhat resembling 737 fuselages except that they had eight massive sets of landing gear, and rocket engines attached vertically to their sides, and two jet engines mounted above the fuselage fore and aft. Five of these miners had been dropped in the area some two years before. In the

or a habitat.

Nadia and Samantha's miner was more stubborn; in the whole afternoon they only managed to haul it a hundred meters, and they had to use the bulldozer attachment to scrape a rough road for it all the way. Just before sunset they returned through the lock into the habitat, their hands cold and aching with fatigue. They stripped down to their dust-caked underwear and went straight to the kitchen, ravenous once more; Vlad estimated they were each burning about six thousand calories a day. They cooked and gulped down rehydrated pasta, nearly scalding their partially-thawed fingers on their trays. Only when they had finished eating did they go to the women's changing room and start trying to clean themselves up, sponging down with hot water, changing into clean jumpers. "It's going to be hard to keep our clothes clean, that dust even gets through the wristlocks, and the waist zippers are like open holes." "Well yeah, those fines are micron-sized! We're going to have worse trouble from it than dirty clothes, I can tell you that. It's going to be getting into everything, our lungs, our blood, our brains. . . ."

"That's life on Mars." This was already a popular refrain, used whenever they encountered a problem, especially an intractable one.

On some days after dinner there were a couple hours of sunlight left, and Nadia, restless, would sometimes go back outside. Often she spent the time wandering around the crates that had been hauled to base that day, and over time she assembled a personal tool kit, feeling like a kid in a candy store. Years in the Siberian power industry had given her a reverence for good tools, she had suffered brutally from the lack of them. Everything in north Yakut had been built on permafrost, and the platforms sank unevenly in the summer, and were buried in ice in the winter, and parts for construction had come from all over the world, heavy machinery from Switzerland and Sweden, drills from America, reactors from the Ukraine, plus a lot of old scavenged Soviet stuff, some of it good, some indescribably shoddy, but all of it unmatched-some of it even built in inches-so that they had had to improvise constantly, building oil wells out of ice and string, knocking together nuclear reactors that made Chernobyl

thermostats, three hydraulic jacks, a bellows, several sets of screwdrivers, drills and bits, a portable compressed gas cylinder, a box of plastic explosives and shape charges, a tape measure, a giant Swiss Army knife, tin snips, tongs, tweezers, three vises, a wirestripper, X-acto knives, a pick, a bunch of mallets, a nut driver set, hose clamps, a set of end mills, a set of jeweler's screwdrivers, a magnifying glass, all kinds of tape, a plumber's bob and ream, a sewing kit, scissors, sieves, a lathe, levels of all sizes, long nosed pliers, vise grip pliers, a tap and die set, three shovels, a compressor, a generator, a welding and cutting set, a wheelbarrow-

and so on. And this was just the mechanical equipment, her carpenter's tools. In other parts of the warehouse they were stockpiling research and lab equipment, geological tools, and any number of computers and radios and telescopes and videocameras; and the biosphere team had warehouses of equipment to set up the farm, the waste recyclers, the gas exchange mechanism, in essence their whole infrastructure; and the medical team had more warehouses of supplies for the clinic, and their research labs, and the genetic engineering facility. "You know what this is," Nadia said to Sax Russell one evening looking around her warehouse, "It is an entire town, disassembled and lying in pieces."

"And a very prosperous town at that."

"Yes, a university town. With first-rate departments in several sciences."

"But still in pieces."

"Yes. But I kind of like it that way."

Sunset was mandatory return-to-habitat time, and in the dusk she would stumble into the lock and inside, and eat another small cold meal sitting on her bed, listening to the talk around her which mostly concerned the day's work, and the arrangement of the tasks for the next morning. Frank and Maya were supposed to be doing this, but in fact it was happening spontaneously, in a kind of ad hoc barter system. Hiroko was particularly good at it, which was a surprise given how withdrawn she had been on the voyage out; but now that she needed help from outside her team, she spent most of every evening moving from person to person, so single-

be helping me tomorrow, right?

"No, no," Hiroko said, laughing. "Day after, okay?"

Hiroko's main competition for labor came from Sax Russell and his crowd, who were working to start all the factories. Vlad and Ursula and the biomed group were also hungry to get all their labs set up and running. These three teams seemed willing to live in the trailer park indefinitely, as long as their own projects were progressing; but luckily there were a lot of people who were not so obsessed by their work, people like Maya and John and the rest of the cosmonauts, who were interested in moving into larger and better-protected quarters as soon as possible. So Nadia's project would get help from them.

When she was done eating, Nadia took her tray into the kitchen and cleaned it with a little swab, then went over to sit by Ann Clayborne and Simon Frazier and the rest of the geologists. Ann looked nearly asleep; she was spending her mornings taking long rover trips and hikes, and then working hard on the base all afternoon, trying to make up for her trips away. To Nadia she seemed strangely tense, less happy about being on Mars than one would have thought. She appeared unwilling to work on the factories, or for Hiroko; indeed she usually came to work for Nadia, who, since she was only trying to build housing, could be said to be impacting the planet less than the more ambitious teams. Maybe that was it, maybe not; Ann wasn't saying. She was hard to know, moody-not in Maya's extravagant Russian manner, but more subtly, and, Nadia thought, in a darker register. In Bessie Smith land.

All around them people cleaned up after dinner and talked, and looked over manifests and talked, and bunched around computer terminals and talked, and washed clothes and talked; until most were stretched out on their beds, talking in lower voices, until they passed out. "It's like the first second of the universe," Sax Russell observed, rubbing his face wearily. "All crammed together and no differentiation. Just a bunch of hot particles rushing about."

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work in the penetrating cold was exhausting, so that they went slower than they thought they would, and began to collect a number of minor injuries. And, finally, there was just an amazing number of things to do, some of which had never even occurred to them. It took them about a month, for instance (they had budgeted ten days) just to open all the freight loads, check their contents, and move them into the appropriate stockpiles-to get to the point where they could really begin to work.

After that, they could begin to build in earnest. And here Nadia came into her own. She had had nothing to do on the Ares, it had been a kind of hibernation for her. But building things was her great talent, the nature of her genius, trained in the bitter school of Siberia; and very quickly she became the colony's chief troubleshooter, the universal solvent as John called her. Almost every job they had benefitted from her help, and as she ran around every day answering questions and giving advice, she blossomed into a kind of timeless work heaven. So much to do! So much to do! Every night in the planning sessions Hiroko worked her wiles, and the farm went up: three parallel rows of greenhouses, looking like commercial greenhouses back on Earth except smaller and very thick-walled, to keep them from exploding like party balloons. Even with interior pressures of only three hundred millibars, which was barely farmable, the differential with the outside was drastic; a bad seal or a weak spot, and they would go bang. But Nadia was good at cold weather seals, and so Hiroko was calling her in a panic every other day.

Then the materials scientists needed help getting their factories operational, and the crew assembling the nuclear reactor wanted her supervision for every breath that they took, they were petrified with fright that they would do something wrong, and were not reassured by Arkady sending radio messages down from Phobos insisting they did not need such a dangerous technology, that they could get all the power they needed from wind generation; he and Phyllis had bitter arguments about this. It was Hiroko who cut Arkady off, with what she said was a Japanese commonplace: "Shikata ga nai," meaning there is no other choice. Windmills might have generated enough power, as Arkady contended, but

Chernobyl! she would go back midday to eat, and then help the med team. Every night she passed out exhausted.

Some evenings before she did, she had long talks with Arkady, up on Phobos; the Phobos crew was having trouble with the moon's microgravity, and he wanted her advice as well. "If only we could get into some gee just to live, to sleep!" Arkady said.

"Build train tracks in a ring around the surface," Nadia suggested out of a doze. "Make one of the tanks from the Ares into a train, and run it around the track. Get on board and run the train around fast enough to give you some gee against the ceiling of the train."

Static, then Arkady's wild cackle. "Nadezhda Francine, I love you, I love you!"

"You love gravity."

With all this advisory work, the construction of their permanent habitat went slowly indeed. It was only once a week or so that Nadia could climb into the open cab of a Mercedes and rumble over the torn ground to the end of the trench she had started. At this point it was ten meters wide, fifty long, and two deep, which was as deep as she wanted to go. The bottom of the trench was the same as the surface: clay, fines, rocks of all size. Regolith. While she worked with the bulldozer the geologists hopped in and out of the hole, taking samples and looking around, even Ann who did not like the way they were ripping up the area; but no geologist ever born could keep away from a land cut. Nadia listened to their conversation band as she worked. They figured the regolith was probably much the same all the way down to bedrock, which was too bad; regolith was not Nadia's idea of good ground. At least its water content was low, less than a tenth of a percent, which meant they wouldn't get much slumping under a foundation, one of the constant nightmares of Siberian construction.

When she got the regolith cut right, she was going to lay a foundation of Portland cement, the best concrete they could make with the materials at hand. It would crack unless they poured it two meters thick, but shikata ga nai; and the thickness would provide some insulation. But she would have to box the mud and heat it to get it to cure; it wouldn't below 13 degrees

decide what she felt, and was sure Frank hated her now, etc. etc. etc. Cleaning tools Nadia had said Da, da, da, trying to hide her lack of interest. The truth was she was tired of Maya's problems, and would rather have discussed building materials, or almost anything else.

A call from the Chernobyl crew interrupted her bulldozing. "Nadia, how can we get cement this thick to set in the cold?"

"Heat it."

"We are!"

"Heat it more."

"Oh!" They were almost done out there, Nadia judged; the Rickover had been mostly preassembled, it was a matter of putting the forms together, fitting in the steel containment tank, filling the pipes with water (which dropped their supply to nearly nothing), wiring it all up, piling sandbags around it all, and pulling the control rods. After that they would have three hundred kilowatts on hand, which would put an end to the nightly argument over who got the lion's share of generator power the next day.

There was a call from Sax; one of the Sabatier processors had clogged, and they couldn't get the housing off it. So Nadia left the bulldozing to John and Maya, and took a rover to the factory complex to have a look. "I'm off to see the alchemists," she said.

"Have you ever noticed how much the machinery here reflects the character of the industry that built it?" Sax remarked to Nadia as she arrived and went to work on the Sabatier. "If it was built by car companies, it's low-powered but reliable. If it was built by the aerospace industry, it's outrageously high-powered but breaks down twice a day."

"And partnership products are horribly designed," Nadia said.

"Right."

"And chemical equipment is finicky," Spencer Jackson added.

"I'll say. Especially in this dust."

The Boeing air miners had been only the start of the factory complex; their gases were fed into big boxy trailers to be compressed and expanded and rendered and recombined, using chemical engineering operations such as dehumidification, liquefaction, fractional distillation, electrolysis,

Better than that.

So, alchemy; but with finicky machines. Nadia found the Sabatier's problem, and went to work fixing a broken vacuum pump. It was amazing how much of the factory complex came down to pumps, sometimes it seemed nothing but a mad assemblage of them; and by their nature they kept clogging with fines and breaking down.

Two hours later the Sabatier was fixed. On the way back to the trailer park, Nadia glanced into the first greenhouse. Plants were already blooming, the new crops breaking out of their beds of new black soil. Green glowed intensely in the reds of this world, it was a pleasure to see it. The bamboo was growing several centimeters a day, she had been told, and the crop was already nearly five meters tall. It was easy to see they were going to need more soil. Back at the alchemists' they were using nitrogen from the Boeings to synthesize ammonia fertilizers; Hiroko craved these because the regolith was an agricultural nightmare, intensely salty, explosive with peroxides, extremely arid, and completely without biomass. They were going to have to construct soil just like they had the magnesium bars.

Nadia went into her habitat in the trailer park for a standing lunch. Then she was out again, to the site of the permanent habitat. The floor of the trench had been almost leveled in her absence. She stood on the edge of the hole, looking down in it. They were going to build to a design that she liked tremendously, one she had worked on herself in Antarctica and on the Ares: a simple line of barrel-vaulted chambers, sharing adjacent walls. By setting them in the trench the chambers would be half-buried to begin with; then when completed they would be covered by ten meters of sandbagged regolith, to stop radiation and also, because they planned to pressurize to 450 millibars, to keep the buildings from exploding. Local materials were all they needed for the exteriors of these buildings: Portland cement and bricks were it, basically, with plastic liner in some places to insure the seal.

marly sandbag on top of it, or if we get a little marsquake? I don't like it.

After some thought Nadia said, "Add nylon."

"What?"

"Go out and find the parachutes from the freight drops, and shred them real fine, and add them to the clay. That'll help their tensile strength."

"Very true," Gene said, after a pause. "Good idea! Think we can find the parachutes?"

"They must be east of here somewhere."

So they had finally found a job for the geologists that actually helped the construction effort. Ann and Simon and Phyllis and Sasha and Igor drove long-distance rovers over the horizon to east of the base, searching and surveying far past Chernobyl; and in the next week they found almost forty parachutes, each one representing a few hundred kilos of useful nylon.

One day they came back excited, having reached Ganges Catena, a series of sinkholes in the plain a hundred kilometers to the southeast. "It was strange," Igor said, "because you can't see them until the last minute, and then they're like huge funnels, about ten kilometers across and a couple deep, eight or nine in a row, each smaller and shallower. Fantastic. They're probably thermokarsts, but they're so big it's hard to believe it."

Sasha said, "It's nice to see such a distance, after all this near horizon stuff."

"They're thermokarsts," Ann said. But they had drilled and found no water. This was a getting to be a concern; they hadn't found any water to speak of in the ground, no matter how far down they drilled; it forced them to rely on the supplies from the air miners.

Nadia shrugged. The air miners were pretty tough. She wanted to think about her vaults. The new improved bricks were appearing, and she had started the robots building the walls and roofs. The brick factory filled little robot cars, which rolled like toy rovers across the plain to cranes at the site; the cranes pulled out bricks one by one, and placed them on cold mortar spread by another set of robots. The system worked so well that soon the bottleneck became brick production itself. Nadia would have been

switch to a private band. Michel is useless," she complained. "I'm really having a hard time, and he won't even talk to me! You're the only one I trust, Nadia. Yesterday I told Frank that I thought John was trying to undercut his authority in Houston, but that he shouldn't tell anyone I thought so, and the very next day John was asking me why I thought he was bothering Frank. There's no one who will just listen and stay quiet!"

Nadia nodded, rolling her eyes. Finally she said "Sorry, Maya, I have to go talk to Hiroko about a leak they can't find." She banged her faceplate lightly against Maya's-symbol for a kiss on the cheek-and switched to the common band and took off. Enough was enough. It was infinitely more interesting to talk to Hiroko; real conversations, about real problems in the real world. Hiroko was asking Nadia for help almost every day, and Nadia liked that, because Hiroko was brilliant, and since landfall had obviously raised her estimate of Nadia's abilities. Mutual professional respect, a great maker of friendships. And so nice to talk nothing but business. Hermetic seals, lock mechanisms, thermal engineering, glass polarization, farm/human interfaces (Hiroko's talk was always a few steps ahead of the game); these topics were a great relief after all the emotional whispered conferences with Maya, endless sessions about who liked Maya and who didn't like Maya, about how Maya felt about this and that, and who had hurt her feelings that day. . . bah. Hiroko was never strange, except when she would say something Nadia didn't know how to deal with, like "Mars will tell us what it wants and then we'll have to do it." What could you say to something like that? But Hiroko would just smile her big smile, and laugh at Nadia's shrug.

At night the talk still went everywhere, vehement, absorbed, unselfconscious. Dmitri and Samantha were sure that they could soon introduce GEMs into the regolith that would survive, but they would have to get permission first from the UN. Nadia herself found the idea alarming; it made the chemical engineering in the factories look relatively straightforward, more like brickmaking than the dangerous acts of creation Samantha was proposing.... Although the alchemists were performing some pretty creative things themselves. Almost every day they came back

When they got the first chamber buried and pressurized, Nadia walked around inside it with her helmet off, sniffing the air. It was pressurized to 450 millibars, same as the helmets and the trailer park, with an oxygen-nitrogen-argon mix, and warmed to about fifteen degrees Centigrade. It felt great.

The chamber had been divided into two stories by a floor of bamboo trunks, set in a slot in the brick wall two and a half meters overhead. The segmented cylinders made a sweet green ceiling, lit by neon tubes hung under them. Against one wall was a magnesium and bamboo staircase, leading through a hole to the upper story. She climbed up to have a look. Split bamboo over the trunks made a fairly flat green floor. The ceiling was brick, rounded and low. Up there they would locate the bedrooms and bathroom; the lower floor would be living room and kitchen. Maya and Simon had already put up wall hangings, made of nylon from the salvaged parachutes. There were no windows; lighting came from only from the neon bulbs. Nadia disliked this fact, and in the larger habitat she was already planning, there would be windows in almost every room. But first things first. For the time being these windowless chambers were the best they could do. And a big improvement over the trailer park, after all.

As she went back down the stairs she ran her fingers over the bricks and mortar. They were rough, but warm to the touch, heated by elements placed behind them. There were heating elements under the floor as well. She took off her shoes and socks, luxuriating in the feel of the warm rough bricks underfoot. It was a wonderful room; and nice, too, to think that they had gone all the way to Mars, and there built homes out of brick and bamboo. She recalled vaulted ruins she had seen years ago on Crete, at a site called Aptera; underground Roman cisterns, barrel-vaulted and made of brick, buried in a hillside. They had been almost the same size as these chambers. Their exact purpose was unknown; storage for olive oil, some said, though it would have been an awful lot of oil. Those vaults were intact two thousand years after their construction, and in earthquake country. As Nadia put her boots back on she grinned to think of it. Two thousand years from now, their descendants might walk into this chamber, no doubt

work in pants and sweatshirts, but still, it took an amazing amount of time. Work work work, day after day!

One evening, just before sunset, Nadia trudged across torn-up dirt to the trailer park, feeling hungry and beat and extremely relaxed, totally at ease, not that you didn't have to be careful at the end of a day, she had torn a centimeter hole in the back of a glove the other evening being careless, and the cold hadn't been so bad, about -50° Centigrade, nothing compared to some Siberian winter days-but the low air pressure had sucked out a blood bruise instantly, and then that had started to freeze up, which made the bruise smaller no doubt, but slower to heal as well. Anyway, you had to be careful, but there was something so fluid about tired muscles at the end of a day's construction work, the low rust sunlight slanting across the rocky plain, and all of a sudden she could feel that she was happy. Arkady called in from Phobos at just that moment, and she greeted him cheerily; "I feel just like a Louis Armstrong solo from 1947."

"Why 1947?" he asked.

"Well, that was the year he sounded the most happy. Most of his life his tone has a sharp edge to it, really beautiful, but in 1947 it was even more beautiful because it has this relaxed fluid joy, you never hear it in him before or after."

"A good year for him, I take it?"

"Oh yes! An amazing year! After twenty years of horrible big bands, you see, he got back to a little group like the Hot Five, that was the group he headed when he was young, and there it was, the old songs, even some of the old faces-and all of it better than the first time, you know, the recording technology, the money, the audiences, the band, his own power. . . . It must have felt like the fountain of youth, I tell you."

"You'll have to send up some recordings," Arkady said. He tried to sing: "I can't give you any thing but love, baby!" Phobos was about over the horizon, he had just been calling to say hi. "So this is your 1947," he said before he went.

Nadia put her tools away, singing the song correctly. And she understood that what Arkady had said was true; something had happened

against a table like a hammer, and twiddled the dial to show Hiroko it was unstuck, and laughed at her expression. "The engineer's solution," she explained, and went humming into the lock, thinking how funny Hiroko was, a woman who held their whole ecosystem in her head, but couldn't hammer a nail straight.

And that night she talked over the day's work with Sax, and spoke to Spencer about glass, and in the middle of that conversation crashed on her bunk and snuggled her head into her pillow, feeling totally luxurious, the glorious final chorus of "Ain't Misbehaving" chasing her off to sleep.

###

But things change as time passes; nothing lasts, not even stone, not even happiness. "Do you realize it's ell ess one seventy already?" Phyllis said one night. "Didn't we land at ell ess seven?"

So they had been on Mars for half a martian year. Phyllis was using the calendar devised by planetary scientists; among the colonists it was becoming more common than the terran system. Mars's year was 668.6 local days long, and to tell where they were in this long year it took the Ls calendar. This system declared the line between the sun and Mars at its northern spring equinox to be 0° , and then the year was divided into 360 degrees, so that $Ls = 0^\circ$ - 90° was the northern spring, 90° - 180° the northern summer, 180° - 270° the fall, and 270° - 360° (or 0° again) the winter.

This simple situation was complicated by the eccentricity of the martian orbit, which is extreme by terran standards, for at perhelion Mars is about forty-three million kilometers closer to the sun than it is at aphelion, and thus receiving about 45% more sunlight. This fluctuation makes the southern and northern seasons quite unequal. Perihelion arrives every year at $Ls = 250^\circ$, late in the southern spring; so southern springs and summers are much hotter than northern springs and summers, with peak temperatures as much as thirty degrees higher. Southern autumns and winters are colder, however, occurring as they do near aphelion; so much colder that the southern polar cap is mostly carbon dioxide, while the northern one is mostly water ice.

cement road to Chernobyl, and the base itself was now so big that from the trailer park it extended over the horizon in all directions: the alchemists' quarter and the Chernobyl road to the east, the permanent habitat to the north, the storage area and the farm to the west, and the bio-med center to the south.

Eventually everyone moved into the finished chambers of the permanent habitat. The nightly conferences there were shorter and more routinized than they had been in the trailer park, and days went by when Nadia got no calls for help. There were some people she saw only once in a while; the biomed crew in its labs, Phyllis's prospecting unit, even Ann. One night Ann flopped on her bed next to Nadia's, and invited her to go along on an exploration to Hebes Chasma, some 130 kilometers to the southwest. Obviously Ann wanted to show her something outside the base area; but Nadia declined. "I've got too much work to do, you know." And seeing Ann's disappointment: "Maybe next trip."

And then it was back to work on the interiors of the chambers, and the exteriors of a new wing. Arkady had suggested making the line of chambers the first of four, arranged in a square, and Nadia was going to do it; as Arkady pointed out, it would then be possible to roof the area enclosed by the square. "That's where those magnesium beams will come in handy," Nadia said. "If only we could make stronger glass panes. . . ."

They had finished two sides of the square, twelve chambers entirely done, when Ann and her team returned from Hebes. Everyone spent that evening looking at their videotapes. These showed the expedition's rovers rolling over rocky plains; then ahead there appeared a break extending all the way across the screen, as if they were approaching the edge of the world. Strange little meter-high cliffs finally stopped the rovers, and the pictures bounced as one explorer got out and walked with helmet camera turned on.

Then abruptly the shot was from the rim, a one-eighty pan shot of a canyon that was so much bigger than the sinkholes of Ganges Catena that it was hard to grasp. The walls of the far side of the chasm were just visible on the distant horizon. In fact they could see walls all the way

The weight of a dome would collapse the canyon walls.

"That's why I said you'd have to float it."

Sax just shook his head.

"It's no more exotic than this space elevator you talk about."

"I want to live in a house located right where you took this video," Nadia interrupted. "What a view!"

"Just wait till you get up on one of the Tharsis volcanoes," Ann said, irritated. "Then you'll get a view."

There were little spats like that all the time now. It reminded Nadia unpleasantly of the last months on the Ares. Another example: Arkady and his crew sent down videos of Phobos, with his commentary: "The Stickney impact almost broke this rock in pieces, and it's chondritic, almost twenty percent water, so a lot of the water outgassed on impact and filled the fracture system and froze in a whole system of ice veins." Fascinating stuff, but all it did was cause an argument between Ann and Phyllis, their two top geologists, as to whether this was the real explanation for the ice. Phyllis even suggested shipping water down from Phobos, which was silly, even if their supplies were low and their demand increasing. Chernobyl took a lot of water, and the farmers were ready to start a little swamp in their biosphere; and Nadia wanted to install a swimming complex in one of the vaulted chambers, including a lap pool, three whirlpool baths, and a sauna. Each night people asked Nadia how it was coming along, because everyone was sick of washing with sponges and still being dusty, and of never really getting warm. They wanted a bath; in their old aquatic dolphin brains, down below the cerebrums, down where desires were primal and fierce, they wanted back into water.

So they needed more water, but the seismic scans were finding no evidence of ice aquifers underground, and Ann thought there weren't any in the region. They had to continue to rely on the air miners, or scrape up regolith and load it into the soil-water distilleries. But Nadia didn't like to overwork the distilleries, because they had been manufactured by a French-Hungarian-Chinese consortium, and were sure to wear out if used for bulk work.

had a sense that there was time for things even though she was always busy, and the extra thirty-nine and half minutes per day was probably the most important component of this feeling; human circadian biorhythms had been set over millions of years of evolution, and now to suddenly have extra minutes of day and night, day after day, night after night-no doubt it had effects. Nadia was sure of it, because despite the hectic pace of every day's work, and the way she passed out in sheer exhaustion every night, she always woke rested. That strange pause on the digital clocks, when at midnight the figures hit 12:00:00 and suddenly stopped, and the unmarked time passed, passed, passed, sometimes it seemed for a very long time indeed; and then snapped on to 12:00:01, and began its usual inexorable flicker; well, the martian timeslip was something special. Often Nadia was asleep through it, as were most of the rest of them. But Hiroko had a chant that she chanted during it when she was up, and she and the farm team, and many of the rest of them, spent every Saturday night partying and chanting that chant through the timeslip-something in Japanese, Nadia never learned what, though she sometimes hummed along, sitting enjoying the vault and her friends.

But one Saturday night when she sat there, nearly comatose, Maya came over and sat against her shoulder for a talk. Maya with her beautiful face, always well-groomed, always the latest in chicarnost even in their everyday jumpsuits, looking distraught. "Nadia, you have to do me a favor, please, please."

"What."

"I need you to tell something to Frank for me."

"Why don't you do it yourself?"

"I can't have John seeing us talk! I have to get a message to him, and please, Nadezhda Francine, you're my only way."

Nadia made a disgusted noise.

"Please."

It was suprising how much Nadia would have rather been talking to Ann, or Samantha, or Arkady. If only Arkady would come down from Phobos!

John got to Mars first, and then he got permission to come back again, and Frank doesn't think it was fair. Frank did a lot of the work in Washington to get the colony funded, and he thinks John has always taken advantage of his work. And now, well. John and I are good together, I like him. It's easy with him. Easy, but maybe a little. . . . I don't know. Not boring. But not exciting. He likes to walk around, hang out with the farm crew. He doesn't like to talk that much! Frank, now, we could talk forever. Argue forever, maybe, but at least we're talking! And you know, we had a very brief affair on the Ares, back at the beginning, and it didn't work out, but he still thinks it could."

Why would he think that? Nadia mouthed.

"So he keeps trying to talk me into leaving John and being with him, and John suspects that's what he's doing, so there's a lot of jealousy between them. I'm just trying to keep them from each other's throats, that's all."

Nadia decided to stick to her resolve and not ask about it again. But now she was involved despite herself. Maya kept coming to her to talk, and to ask her to convey messages to Frank for her. "I'm not a go-between!" Nadia kept protesting, but she kept doing it, and once or twice when she did she got into long conversations with Frank, about Maya of course; who she was, what she was like, why she acted the way she did. "Look," Nadia said to him, "I can't speak for Maya. I don't know why she does what she does, you have to ask her yourself. But I can tell you, she comes out of the old Moscow Soviet culture, university and CP for both her mother and her grandmother. And men were the enemies for Maya's babushka, and for her mother too, it was a matrioshka. Maya's mother used to say to her, 'Women are the roots, men are just the leaves.' There was a whole culture of mistrust, manipulation, fear. That's where Maya comes from. And at the same time we have this tradition of *amichonstvo*, a kind of intense friendship where you learn the very tiniest details of your friend's life, you invade each other's lives in a sense, and of course that's impossible and it has to end, usually badly."

Frank was nodding at this description, recognizing something in it. Nadia sighed and went on. "These are the friendships that lead to love,

ought to stay under the hill most of the time, and bury all the labs as well. Outdoors work should be restricted to an hour in the early mornings and another in the late afternoons, when the sun is low."

"I'll be damned if I stay indoors all day," Ann said, and many agreed with her.

"We've got a lot of work to do," Frank pointed out.

"But most of it could be done by teleoperation," Vlad said. "And it should be. What we are doing is the equivalent of standing ten kilometers from an atomic explosion."

"So?" Ann said. "Soldiers did that."

"-every six months," Vlad finished, and stared at her. "Would you do that?"

Even Ann looked subdued. No ozone layer, no magnetic field to speak of; they were getting fried by radiation almost as badly as if they were in interplanetary space, to the tune of 5 rems per year.

And so Frank and Maya ordered them to ration their time outdoors. There was a lot of interior work to be done under the hill, getting the last row of chambers finished; and it was possible to dig some cellars below the vaults, giving them some more space protected from radiation. And many of the tractors were equipped to be teleoperated from indoor stations, their decision algorithms handling the details while the human operators watched screens below. So it could be done; but no one liked the life that resulted. Even Sax Russell, who was content to work indoors most of the time, looked a bit perplexed. In the evenings a number of people began to argue for immediate terraforming efforts, and they made the case with renewed intensity.

"That's not our decision to make," Frank told them sharply. "The UN decides that one. Besides it's a long-term solution, on the scale of centuries at best. Don't waste time talking about it!"

Ann said, "That's all true, but I don't want to waste my time down here in these caves, either. We should live our lives the way we want. We're too old to worry about radiation."

at one point, why don't you just decide? Why don't you quit playing one on against the other?"

"But I have decided! It's John I love, it's always been John. But now he's seen me with Frank and he thinks I've betrayed him. It's really petty of him! They're like brothers, they compete in everything, and this time it's just a mistake!"

Nadia resisted learning the details, she didn't want to hear it. She sat there listening anyway.

And then John was standing there before them. Nadia got up to leave, but he didn't appear to notice: "Look," he said to Maya. "I'm sorry, but I can't help it. It's over."

"It's not over," Maya said, instantly composed. "I love you."

John's smile was rueful. "Yes. And I love you. But I want things simple."

"It is simple!"

"No it isn't. I mean, you can be in love with more than one person at the same time. Anyone can, that's just the way it is. But you can only be loyal to one. And I want. . . I want to be loyal. To someone who is loyal to me. It's simple, but. . . ."

He shook his head; he couldn't find the phrase. He walked back into the eastern row of chambers, disappeared through a door.

"Americans," Maya said viciously. "Fucking children!" Then she was up through the door after him.

But soon she came back. He had retreated to a group in one of the lounges, and wouldn't leave. "I'm tired," Nadia tried to say, but Maya wouldn't hear it, she was getting more and more upset. For over an hour they discussed it, over and over. Eventually Nadia agreed to go to John and ask him to come to Maya and talk it over. Nadia walked grimly through chambers, oblivious to the brick and the colorful nylon hangings. The go-between that nobody noticed. Couldn't they get robots to do this? She found John, who apologized for ignoring her earlier. "I was upset, I'm sorry. I figured you'd hear it all eventually anyway."

casings, spilling hydraulic fluid over the ground, where it had frozen before it even flattened out. They had had to set jacks under the airborne back end of the tractor, and then decouple the entire blade attachment and lower the vehicle on the jacks, and every step of the operation had been a pain.

Then as soon as that was finished, Nadia had been called over to help with a Sandvik Tubex boring machine, which they were using to drill cased holes through large boulders they ran into while laying a water line from the alchemists' to the permanent habitat. The down-the-hole pneumatic hammer had apparently frozen at full extension, as stuck as an arrow fired most of the way through a tree. Nadia stood looking down at the hammer shaft. "Do you have any suggestions for freeing the hammer without breaking it?" Spencer asked.

"Break the boulder," Nadia said wearily, and walked over and got in a tractor with a backhoe already attached. She drove it over, and dug down to the top of the boulder, and then got out to attach a little Allied hydraulic impact hammer to the backhoe. She had just set it in position on the top of the boulder when the down-the-hole hammer suddenly jerked it drill back, pulling the boulder with it and catching the outside of her left hand against the underside of the Allied Hy-Ram.

Instinctively she pulled back, and pain lanced up her arm and into her chest. Fire filled that side of her body and her vision went white. There were shouts in her ears: "What's wrong? What happened?" She must have screamed. "Help," she grated. She was sitting, her crushed hand still pinned between rock and hammer. She pushed at the front wheel of the tractor with her foot, shoved with all her might and felt the hammer rasp her bones over rock. Then she was flopped on her back, the hand free. The pain was blinding, she felt sick to her stomach and thought she might faint. Pushing onto her knees with her good hand, she saw that the crushed hand was bleeding heavily, the glove ripped apart, the little finger apparently gone. She groaned and hunched over it, pressed it to her and then jammed it against the ground, ignoring the flash of pain. Even bleeding as it was, the hand would freeze in. . . how long? "Freeze, damn you, freeze," she cried. She shook tears out of her eyes and forced herself

Of course I read him, it's better than McGonagall! NO, this was in a book on Armstrong. I've taken your advice and been listening to him while we work, and lately reading some books on him at night."

"I wish you'd come down here," Nadia said.

Vlad had done the surgery. He told her it would be all right. "It caught you clean. The ring finger is a bit impaired, and will act like the little finger used to, probably. But ring fingers never do much anyway. The two main fingers will be strong as ever."

Everyone came by to visit. Nevertheless she spoke more with Arkady than anyone else, in the hours of the night when she was alone, in the four and a half hours between Phobos's rising in the west and its setting in the east. He called in almost every night, at first, and often thereafter.

Pretty soon she was up and around, hand in a cast that was suspiciously slender. She went out to troubleshoot or consult, hoping to keep her mind occupied. Michel Duval never came by at all, which she thought was strange. Wasn't this what psychologists were for? She couldn't help feeling depressed; she needed her hands for her work, she was a hand laborer. The cast got in the way and she cut off the part around the wrist, with shears from her tool kit. But she had to keep both hand and cast in a box when outside, and there wasn't much she could do. It really was depressing.

Saturday night arrived, and she sat in the newly filled whirlpool bath, nursing a glass of bad wine and looking around at her companions, splashing and soaking in their bathing suits. She wasn't the only one to have been injured, by any means; they were a bit battered now, after so many months of physical work: almost everyone had frostburn marks, patches of black skin that eventually peeled, leaving pink new skin, garish and ugly in the heat of the pools. And several others wore casts, on hands, wrists, arms, even legs; all for breaks or sprains. Actually they were lucky no one had gotten killed yet.

All these bodies, and none for her. They knew each other like family, she thought; they were each others' physicians, they slept in the same rooms, dressed in the same locks, bathed together; an unremarkable group

how the feel of it was changing. She could never get a fix on it, the real nature of the group was a thing apart, with a life of its own, somehow distinct from the characters of the individuals that constituted it. It must make Michel's job as their shrink almost impossible. Not that one could tell with Michel; he was the quietest and most unobtrusive psychiatrist she had ever met. No doubt an asset, in this crowd of shrink-atheists. But she still thought it was odd he hadn't come by to see her after the accident.

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One evening she left the dining chambers and walked down to the tunnel they were digging from the vaulted chambers to the farm complex, and there at the tunnel's end were Maya and Frank, arguing in a vicious undertone that carried down the tunnel not their meaning but their feeling; Frank's face was contorted with anger, and Maya as she turned from him was distraught, weeping; she turned back to shout at him "It was never like that," and then ran blindly toward Nadia, her mouth twisted into a snarl, Frank's face a mask of pain. Maya saw Nadia standing there and ran right by her.

Shocked, Nadia turned and walked back to the living chambers. She went up magnesium stairs to the living room in chamber two, and turned on the TV to watch a twenty-four hour news program from Earth, something she very rarely did. After a while she turned down the sound, and looked at the pattern of bricks in the barrel vault overhead. Maya came in and started to explain things to her: there was nothing between her and Frank, it was in Frank's mind only, he just wouldn't give up on it even though it had been nothing to begin with; she wanted only John, and it wasn't her fault that John and Frank were on such bad terms now, it was because of Frank's irrational desire, it wasn't her fault, but she felt so guilty because the two men had once been such close friends, like brothers.

And Nadia listened with a careful show of patience, saying "Da, da," and "I see," and the like, until Maya was lying flat on her back on the floor, crying, and Nadia was sitting on the edge of a chair staring at her, wondering how much of it was true. And what the argument had really been about. And whether she was a bad friend to distrust her old

the cap and set up a robot distillery, along the way establishing a route that rovers could follow on automatic pilot. "Come with us," she said to Nadia. "You haven't seen anything of the planet yet, just the stretch between here and Chernobyl, and that's nothing. You missed Hebes and Ganges, and you're not doing anything new here. Really, Nadia, I can't believe what a grub you've been. I mean why did you come to Mars, after all?"

"Why?"

"Yes, why? I mean there's two kinds of activities here, there's the exploration of Mars and then there's the life support for that exploration. And here you've been completely immersed in the life support, without paying the slightest attention to the reason we came in the first place!"

"Well, it's what I like to do," Nadia said uneasily.

"Fine, but try to keep some perspective on it! What the hell, you could have stayed back on Earth and been a plumber! You didn't have to come all this way to drive a goddamn bulldozer! Just how long are you going to go on grubbing away here, installing toilets, programming tractors?"

"All right, all right," Nadia said, thinking of Maya and all the rest. The square of vaults was almost finished, anyway. "I could use a vacation."

They took off in three big long-range rovers: Nadia and five of the geologists, Ann, Simon Frazier, George Berkovic, Phyllis Boyle, and Edvard Perrin. George and Edvard were friends of Phyllis's from their NASA days, and they supported her in advocating "applied geological studies," meaning prospecting for rare metals; Simon on the other hand was a quiet ally of Ann's, committed to pure research and a hands-off attitude. Nadia knew all this even though she had spent very little time alone with any of these people, except for Ann. But talk was talk; she could have named all the allegiances of everyone at base if she had to.

The expedition rovers were each composed of two four-wheeled modules, coupled by a flexible frame; they looked a bit like giant ants. They had been built by Rolls Royce and a multinational aerospace consortium, and had a beautiful sea green finish. The forward modules

were heading northeast, to avoid the canyon systems of Tempe and Mareotis, and this route took them down Lunae to the long slope of Chryse Planitia. Both these regions looked much like the land around their base camp, bumpy and strewn with small rocks; but because they were heading downhill they often had much longer views than they were used to. It was a new pleasure to Nadia, to drive on and on and see new countryside continually pop over the horizon: hillocks, dips, enormous isolated boulders, the occasional low round mesa that was the outside of a crater.

When they had descended to the lowlands of the northern hemisphere, they turned and drove straight north across the immense Acidalia Planitia, and again ran straight for several days. Their wheel tracks stretched behind them like the first cut of a lawnmower through grass, and the transponders gleamed bright and incongruous among the rocks. Phyllis, Edvard and George talked about making a few side trips, to investigate some indications seen in satellite photos that there were unusual mineral outcroppings near Perepelkin Crater. Ann reminded them irritably of their mission. It made Nadia sad to see that Ann was nearly as distant and tense out here as she was at back at base; whenever the rovers were stopped she was outside walking around alone, and she was withdrawn when they sat together in Rover One to eat dinner. Occasionally Nadia tried to draw her out: "Ann, how did all these rocks get scattered around like this?"

"Meteors."

"But where are the craters?"

"Most are in the south."

"But how did the rocks get here, then?"

"They flew. That's why they're so small. It's only smaller rocks could be tossed so far."

"But I thought you told me that these northern plains were relatively new, while the heavy cratering was relatively old."

"That's right. The rocks you see here come from late meteor action. The total accumulation of loose rock from meteor strikes is much greater

canyons were impassable to rovers, and when they came on one they had to turn and run along its rim, until its floors rose or its walls drew together, and they could continue north over flat plain again.

The horizon ahead was sometimes twenty kilometers off, sometimes three. Craters became rare, and the ones they passed were surrounded by low mounds that rayed out from the rims: splosh craters, where meteors had landed in permafrost that had turned to hot mud in the impact. Nadia's companions spent a day wandering eagerly over the splayed hills around one of these craters; the rounded slopes, Phyllis said, indicated ancient water as clearly as the grain in petrified wood indicated the original tree. By the way she spoke Nadia understood that this was another of her disagreements with Ann; Phyllis believed in the long wet past model, Ann in the short wet past. Or something like that. Science was many things, Nadia thought, including a weapon with which to hit other scientists.

Further north, around latitude 54°, they drove into the weird-looking land of thermokarsts, hummocky terrain spotted by a great number of steep-sided oval pits, called alases. These alases were a hundred times bigger than their terran analogues, most of them two or three kilometers across, and about sixty meters deep. A sure sign of permafrost, the geologists all agreed; seasonal freezing and thawing of the soil caused it to slump in this pattern. Pits this big indicated that water content in the soil must have been high, Phyllis said. Unless it was yet another manifestation of martian times scales, Ann replied. Slightly icy soil, slumping every so slightly, for eons.

Irritably Phyllis suggested that they try collecting water from the ground, and irritably Ann agreed. They found a smooth slope between depressions, and stopped to install a permafrost water collector. Nadia took charge of the operation with a feeling of relief; the trip's lack of work had begun to get to her. It was a good day's job: she dug a ten-meter long trench with the lead rover's little backhoe; laid the lateral collector gallery, a perforated stainless steel pipe filled with gravel; checked the electric heating elements running in strips along the pipe and filters; then filled in the trench with the clay and rocks they had dug out earlier.

packed in a thick cylinder of white polyurethane foam, then fitted into a larger protective pipe. Amazing how much insulation complicated a simple piece of plumbing.

Hex nut, washer, cotter pin, a firm tug on the wrench. Nadia walked along the line, checking the coupling bands at the joints. Everything firm. She lugged her tools over to Rover One, looked back at the result of the day's work: a tank, a short pipe on posts, a box on the ground, a long low mound of disturbed soil running uphill, looking raw but otherwise not unusual in this land of lumps. "We'll drink some fresh water on our way back," she said.

###

They had driven north for over two thousand kilometers, and finally rolled down onto Vastitas Borealis, an ancient cratered lava plain that ringed the northern hemisphere between latitudes 60° and 70°. Ann and the other geologists spent a couple of hours every morning out on the bare dark rock of this plain, taking samples, after which they would drive north for the rest of the day, discussing what they had found. Ann seemed more absorbed in the work, happier. One evening Simon pointed out that Phobos was running just over the low hills to the south; the next day's drive would put it under the horizon. It was a remarkable demonstration of just how low the little moon's orbit was; they were only at latitude 69°! But Phobos was only some five thousand kilometers above the planet's equator. Nadia waved goodbye to it with a smile; she would still be able to talk to Arkady using the newly arrived areosynchronous radio satellites.

Three days later the bare rock ended, running under waves of blackish sand. It was just like coming on the shore of a sea. They had reached the great northern dunes, which wrapped the world in a band between Vastitas and the polar cap; where they were going to cross, the band was about eight hundred kilometers wide. The sand was a charcoal color, tinged with purple and rose, a rich relief to the eye after all the red rubble of the south. The dunes trended north and south, in parallel crests that occasionally broke or merged. Driving over them was easy; the sand was hard-packed,

One day on this petified sea, Rover Two stopped. A red light on the control panel indicated the problem was in the flexible frame between the modules; and in fact the rear module was tilted to the left, shoving the left side wheels into the sand. Nadia got into a suit and went back to have a look. She took the dust cover off the joint where the frame connected to the module chassis, and found that the bolts holding them together were all broken.

"This is going to take a while," Nadia said. "You guys might as well have another look around."

Soon the suited figures of Phyllis and George emerged, followed by Simon and Ann and Edvard. Phyllis and George took a transponder from Rover Three and set it out three meters to the right of their "road." Nadia went to work on the broken frame, handling things as little as possible; it was a cold afternoon, perhaps seventy below, and she could feel the diamond chill right down to the bone.

The ends of the bolts wouldn't come out of the side of the module, so she got out a drill and started drilling new holes. She began to hum "The Sheik of Araby." Ann and Edvard and Simon were discussing sand. It was so nice, Nadia thought, to see ground that wasn't red. To hear Ann absorbed in her work. To have some work to do herself.

They had almost reached the arctic circle, and it was $L_s = 87$, with the northern summer solstice only forty days away; so the days were getting long. Nadia and George worked through the evening while Phyllis heated supper, and then after the meal Nadia went back out to finish the job. The sun was red in a brown haze, small and round even though it was near setting; there wasn't enough atmosphere for oblation to enlarge and flatten it. Nadia finished, put her tools away, and had opened the outer lock door of Rover One, when Ann's voice spoke in her ear. "Oh Nadia, are you going in already?"

Nadia looked up. Ann was on the ridge of the dune to the west, waving down at her, a black silhouette against a blood-colored sky.

"That was the idea," Nadia said.

about five kilometers on. Ann was crouching, a scoop of sand in her palm.

"What's it made of?" Nadia asked.

"Dark solid mineral particles."

Nadia snorted. "I could have told you that."

"Not before we got here you couldn't. It might have been fines aggregated with salts. But it's bits of rock instead."

"Why so dark?"

"Volcanic. On Earth sand is mostly quartz, you see, because there's a lot of granite there. But Mars doesn't have much granite. These grains are probably volcanic silicates. Obsidian, flint, some garnet. Beautiful, isn't it?"

She held out a handful of sand for Nadia's inspection. Perfectly serious of course. Nadia peered through her faceplate at the black grit. "Beautiful," she said.

They stood and watched the sun set. Their shadows went right out to the eastern horizon. The sky was a dark red, murky and opaque, only slightly lighter in the west over the sun. The clouds Ann had mentioned were bright yellow streaks, very high in the sky. Something in the sand caught at the light, and the dunes were distinctly purplish. The sun was a little gold button, and above it shone two evening stars: Venus, and the Earth.

"They've been getting closer every night lately," Ann said softly. "The conjunction should be really brilliant."

The sun touched the horizon, and the dune crests faded to shadow. The little button sun sank under the black line to the west. Now the sky was a maroon dome, the high clouds the pink of moss campion. Stars were popping out everywhere, and the maroon sky shifted to a vivid dark violet, an electric color that was picked up by the dune crests, so that it seemed crescents of liquid twilight lay across the black plain. Suddenly Nadia felt a breeze swirl through her nervous system, running up her spine and out into her skin; her cheeks tingled, and she could feel her spinal cord thrum. Beauty could make you shiver! It was a shock to feel such a physical response to beauty, a thrill like some kind of sex. And this beauty was so strange, so alien. Nadia had never seen it properly before, or never

They glissaded down the steep face of the dune on their boot heels. At the bottom Nadia gave Ann an impulsive hug: "Oh Ann, I don't know how to thank you for that." Even through the tinted faceplates she could see Ann grin. A rare sight.

###

After that things looked different to Nadia. Oh she knew it was in herself, that it was a matter of paying attention in a new way, of looking. But the landscape conspired in this sensation, feeding her new attentiveness; because the very next day they left the black dunes, and drove on to what her companions called layered or laminate terrain. This was the region of flat sand that in winter would lie under the CO₂ skirt of the polar cap. Now in midsummer it lay revealed, a landscape made entirely of curvilinear patterns. They drove up broad flat washes of yellow sand that were bounded by long sinuous flat-topped plateaus; the sides of the plateaus were stepped and benched, laminated both finely and grossly, looking like wood that had been cut and polished to show a handsome grain. None of them had ever seen any land remotely like it, and they spent the mornings taking samples and borings, and hiking around in a loping martian ballet, talking a blue streak, Nadia as excited as any of them. Ann explained to her that each winter's frost caught a lamina on the surface. Then wind erosion had cut arroyos, and stripped away at their sides, and each strata was stripped back farther than the one below it, so that the arroyo walls consisted of hundreds of narrow terraces. "It's like the land is a contour map of itself," Simon said.

They drove during the days, and went out every evening, in purple dusks that lasted until just before midnight. They drilled borings, and came up with cores that were gritty and icy, laminated for as far down as they could drill. One evening Nadia was climbing with Ann up a series of parallel terraces, half-listening to her explain about the precession of aphelion and perihelion, when she looked back across the arroyo and saw that it was glowing like lemons and apricots in the evening light, and that above the arroyo were pale green lenticular clouds, mimicking perfectly the terrain's French curves. "Look!" she exclaimed.

had to backtrack to find a way. But usually a route north could be found without difficulty.

On their fourth day in the laminate terrain, the plateau walls flanking their flat wash curved together, and they drove up the cleavage onto a higher plane; and there before them on the new horizon was a white hill, a great rounded thing, like a white Ayer's Rock. A white hill-it was ice! A hill of ice, a hundred meters high and a kilometer wide-and when they drove around it, they saw that it continued over the horizon to the north. It was the tip of a glacier, perhaps a tongue of the polar cap itself. In the other cars they were shouting, and in the noise and confusion Nadia could only hear Phyllis, crying "Water! Water!"

Water indeed. Though they had known it was going to be there, it was still startling in the extreme to run into a whole great white hill of it, in fact the tallest hill they had seen in the entire five thousand kilometers of their voyage. It took them all that first day to get used to it: they stopped the rovers, pointed, chattered, got out to have a look, took surface samples and borings, touched it, climbed up it a ways. Like the sand around it, the ice hill was horizontally laminated, with lines of dust about a centimeter apart. Between the lines the ice was pocked and granular; in this atmospheric pressure it sublimed at almost all temperatures, leaving pitted, rotten side walls to a depth of a few centimeters; under that it was solid, and hard.

"This is lot of water," they all said at one point or another. Water, on the surface of Mars. . . .

The next day the glacier hill formed their right horizon, a wall that ran on beside them for the whole day's drive. Then it really began to seem like a lot of water, especially as over the course of the day the wall got taller, rising to a height of about three hundred meters. A kind of white mountain ridge, in fact, walling off their flat-bottomed valley on its east side. And then, over the horizon to the northwest, there appeared another white hill, the top of another ridge poking over the horizon, the base remaining beneath it. Another glacier hill, walling them in to the west, some thirty kilometers away.

regular, and the rovers rolled over the corrugated land, up and down, up and down. Then as they crested a sand wave they spotted the drop, no more than two kilometers from the foot of the northwest ice wall: bulky lime green containers on skeletal landing modules, a strange sight in this world of whites and tans and pinks. "What an eyesore!" Ann exclaimed, but Phyllis and George were cheering.

During the long afternoon, the shadowed western iceside took on a variety of pale colors: the purest water ice was clear and bluish, but most of the hillside was a translucent ivory, copiously tinted by pink and yellow dust. Irregular patches of CO₂ ice were a bright pure white; the contrast between dry ice and water ice was vivid, and made it impossible to read the actual contours of the hillside. And foreshortening made it hard to tell how tall the hill really was; it seemed to go up forever, and was probably somewhere between three and five hundred meters above the floor of Borealis.

"This is a lot of water," Nadia exclaimed.

"And there's more underground," Phyllis said. "Our borings show that the cap actually extends many degrees of latitude farther south than we see, buried under the layered terrain."

"So we have more water than we'll ever need!"

Ann pursed her mouth unhappily.

###

The drop of the mining equipment had determined the site of the ice mining camp: the west wall of Chasma Borealis, at longitude 41°, latitude 83° N. Deimos had just recently followed Phobos under the horizon; they wouldn't see it again until they returned south of 82° N. The summer nights consisted of an hour's purple twilight; the rest of the time the sun wheeled around, never more than twenty degrees above the horizon. The six of them spent long hours outside, moving the ice miner to the wall and then setting it up. The main component was a robotic tunnel borer, about the size of one of their rovers. The borer cut into the ice, and passed back cylindrical drums 1.5 meters in diameter. When they turned the borer on it made a loud, low buzz, which was louder still if they put their helmets to the

solar panels to power it. In the long evenings after dinner Ann would climb the ice wall, ostensibly to take more borings, although Nadia knew she just wanted away from Phyllis and Edvard and George. And naturally she wanted to climb all the way to the top, to get on the polar cap and look around, and take borings of the most recent layers of ice; and so one day when the miner had passed all the test routines, she and Nadia and Simon got up at dawn-just after two AM-and went out into the supercold morning air and climbed, their shadows like big spiders climbing before them. The slope of the ice was about thirty degrees, steepening and then letting off time after time as they ascended the rough benches in the hill's layered side.

It was seven AM when the slope laid back and they walked onto the surface of the polar cap. To the north was a plain of ice that extended as far as they could see, to a high horizon some thirty kilometers away. Looking back to the south they could see a great distance over the geometric swirls of the layered terrain; it was the longest view Nadia had ever had on Mars.

The ice of the plateau was layered much like the laminated sand below them, with wide bands of dirty pink contouring across cleaner stuff. The other wall of Chasma Borealis lay off to the east, looking almost vertical from their point of view, long, tall, massive: "So much water!" Nadia said again. "It's more than we'll ever need."

"That depends," Ann said absently, screwing the frame of the little borer into the ice. Her darkened faceplate turned up at Nadia: "If the terraformers have their way, this will all go like dew on a hot morning. Into the air to make pretty clouds."

"Would that be so bad?" Nadia asked.

Ann stared at her. Through the tinted faceplate her eyes looked like ballbearings.

That night at dinner she said, "We really ought to make a run up to the pole."

Phyllis shook her head. "We don't have the food or air."

"Call for a drop."

here. And it means more exposure to radiation.

"And," George added, "we could use what food and air we do have to check out some of the sites we passed on the way up here."

So that was their point. Ann scowled. "I'm the head of the geological survey," she said sharply. Which may have been true, but she was a horrible politician, especially compared to Phyllis, who had any number of friends in Houston and Washington.

"But there's no geological reason to go to the pole," Phyllis said now with a smile. "It'll be the same ice as here. You just want to go."

"Well?" Ann said. "Say I do! There are still scientific questions to be answered up there. Is the ice the same composition, how much dust-everywhere we go up here we collect valuable data."

"But we're up here to get water. We're not up here to fool around."

"It's not fooling around!" Ann snapped. "We obtain water to allow us to explore, we don't explore just to obtain water! You've got it backwards! I can't believe how many people in this colony do that!"

Nadia said, "Let's see what they say at base. They might want us to help with something there, or they might not be able to send a drop, you never know."

Ann groaned. "We'll end up asking permission from the UN, I swear."

She was right. Frank and Maya didn't like the idea, John was interested but noncommittal. Arkady supported it when he heard of it, and declared he would send a supply drop from Phobos if necessary, which given its orbit was impractical at best. But at that point Maya called mission control in Houston and Baikonur, and the argument rippled outward. Hastings opposed the plan; but Baikonur, and a lot of the scientific community, liked it.

Finally Ann got on the phone, her voice very curt and arrogant, though she looked scared: "I'm the geological head here, and I say it needs to be done. There won't be any better opportunity to get onsite data on the original condition of the polar cap. It's a delicate system, and any change in the atmosphere is going to impact it heavily. And you're got plans to do that, right? Sax, are you still working on those windmill heaters?"

caused. A little heat for a little wind is a great trade-off.

"So, a million windmills," Ann said now. "And that's just the start. You talked about spreading black dust on the polar caps, didn't you Sax?"

"It would thicken the atmosphere faster than practically any other action we could take."

"So if you get your way," Ann said, "the caps are doomed. They'll evaporate and then we're going to say, 'I wonder what they were like?' And we won't know."

"Do you have enough supplies, enough time?" John asked.

"We'll drop you supplies, " Arkady said again.

"There's four more months of summer," Ann said.

"You just want to go to the pole!" Frank said, echoing Phyllis.

"So?" Ann replied. "You may have come here to play office politics, but I plan to see a bit of this place."

Nadia grimaced; that ended that line of conversation, and Frank would be angry. Which was never a good idea. Ann, Ann. . . .

The next day the terran offices weighed in with the opinion that the polar cap ought to be sampled in its aboriginal condition. No objections from base; though Frank did not get back on the line. Simon and Nadia cheered: "North to the Pole!"

Phyllis just shook her head. "I don't see the point. George and Edvard and I will stay down here as a back-up, and make sure the ice miner is working right."

###

So Ann and Nadia and Simon took rover Three and drove back down Chasma Borealis and around to the west, where one of the glaciers curling away from the cap thinned to a perfect rampway. The mesh of the rovers' big wheels caught like a snowmobile's driving chain, running well over all the various surfaces of the cap, over patches of exposed granular dust, low hills of hard ice, fields of blinding white CO₂ frost, and the usual lace of sublimed water ice. Shallow valleys swirled outward in a clockwise pattern from the pole; some of these were very broad. Crossing these they would drive down a bumpy slope that curved away to right and left over both

glass of the rover's windows the whiteness was unmarred and pure. Once they passed a low ring hill, the mark of some relatively recent meteor impact, filled in by subsequent ice deposition. They stopped to take borings, of course. Nadia had to restrict Ann and Simon to four borings a day, to save time and keep the rovers' trunks from being overloaded. And it wasn't just borings; often they would pass black isolated rocks, resting on the ice like Magritte sculptures: meteorites. They collected the smallest of these, and took samples from the larger ones; and once passed one that was as big as the rover. They were nickel-iron for the most part, or stony chondrites. Chipping away at one of these, Ann said to Nadia, "You know they've found meteorites on Earth that came from Mars. The reverse happens too, although much less often. It takes a really big impact to jack rocks out of Earth's gravitational field fast enough to get them out here—delta V of fifteen kilometers per second, at least—I've heard it said that about two percent of the material ejected out of Earth's field would end up on Mars. But only from the biggest impacts, like the KT boundary impact. It would be strange to find a chunk of the Yucatan here, wouldn't it?"

"But that was sixty million years ago," Nadia said. "It would be buried under the ice."

"True." Later, walking back to the rover, she said, "Well, if they melt these caps then we'll find some. We'll have a whole museum of meteorites, sitting around on the sand."

###

They crossed more swirl valleys, falling again into the up-and-down pattern of a boat over waves, this time the largest waves yet, forty kilometers from crest to crest. They used the clocks to keep on a schedule, and parked from ten PM to five AM on hillocks or buried crater rims, to give themselves a view during their stops; and they blacked the windows with double polarization to help them to get some sleep at night.

Then one morning as they crunched along, Ann turned on the radio and began to run checks with the areosynchronous satellites. "It's not easy to find the pole," she said as she worked. "The early terran explorers had a

was that right?

"This is it," Ann said.

"What?"

They stopped the rover, looked around. The white plain undulated to the nearby horizon, featureless except for a couple of broad red contour lines; the lines did not form bull's eyes circles around them, and it didn't look like they were at the top of anything.

"Where, exactly?" Nadia asked.

"Well, somewhere just north of here." Ann smiled again. "Within a kilometer or so. Maybe that way." She pointed off to the right. "We'll have to go over there a ways and check with the satellite again. A little bit of triangulation and we should be able to hit it on the nose. Plus or minus a hundred meters, anyway."

"Of we just took the time, we could make it plus or minus a meter!" Simon said enthusiastically. "Let's pin it down!"

So they drove for a minute, consulted the radio, turned to right angles and drove again, made another consultation. Finally Ann declared they were there, or close enough. Simon programmed the computer to keep working on it, and they suited up and went out and wandered around a bit, to make sure they had stepped on it. Ann and Simon drilled a boring. Nadia kept walking, in a spiral that expanded away from the cars. A reddish white plain, the horizon some four kilometers away; too close; it came to her in a rush, as during the black dune sunset, that this was alien—a sharp awareness of the tight horizon, the dreamy gravity, a world just so big and no bigger. . . and now she was standing right on its north pole. It was $L_s = 92$, about as near midsummer as you could ask; so if she stood facing the sun, and didn't move, the sun would stay right in front of her face for all the rest of the day, or the rest of the week for that matter! It was strange. She was spinning like a top. If she stood still long enough, would she feel it?

Her polarized faceplate reduced the sun's glare on the ice to a arc of crystalline rainbow points. It wasn't very cold. She could just feel a breeze against her upraised palm. A graceful red streak of depositional laminae

driver's seat, staring out at the scene, her dinner half-eaten. No sound but the whoosh of the ventilator. "I'm glad you got us up here," Nadia said. "It's been great."

"Someone should enjoy it," Ann said. When she was angry or bitter her voice became flat and distant, almost as if she were being matter-of-fact. "It won't be here long."

"Are you sure, Ann? It's five kilometers deep here, isn't that what you said? Do you really think it will completely disappear just because of black dust on it?"

Ann shrugged. "It's a question of how warm we make it. And of how much total water there is on the planet, and how much of the water in the regolith will surface when we heat the atmosphere. We won't know any of those things until they happen. But I suspect that since this cap is the primary exposed body of water, it'll be the most sensitive to change. It could sublime away almost entirely before any significant part of the permafrost has gotten within fifty degrees of melting."

"Entirely?"

"Oh, some will be deposited every winter, sure. But there's not that much water, when you put it in the global perspective. This is a dry world, the atmosphere is super-arid, it makes Antarctica look like a jungle, and remember how that place used to suck us dry? So if temperatures go up high enough, the ice will sublime at a really rapid rate. This whole cap will shift into the atmosphere and blow south, where it'll frost out at nights. So in effect it'll be redistributed more or less evenly over the whole planet, as frost about a centimeter thick." She grimaced. "Less than that, of course, because most of it will stay in the air."

"But then if it gets hotter still, the frost will melt, and it will rain. Then we've got rivers and lakes, right?"

"If the atmospheric pressure is high enough. Liquid surface water depends on air pressure as well as temperature. If both rise, we could be walking around on sand here in a matter of decades."

"It'd be quite a meteorite collection," Nadia said, trying to lighten Ann's mood.

###

Four days later they were off the ice. As they retraced their route back to Phyllis and George and Edvard, the three travelers rolled over a rise and came to a halt; there was a structure on the horizon. Out on the flat sediment of the chasma floor there stood a classical Greek temple, six Dorian columns of white marble, capped by a round flat roof.

"What the hell?"

When they got closer they saw that the columns were made of ice drums from the miner, stacked on top of each other. The disk that served as roof was rough-hewn.

"George's idea," Phyllis said over the radio.

"I noticed the ice cylinders were the same size as the marble drums the Greeks used for their pillars," George said, still pleased with himself. "After that it was obvious. And the miner is running perfectly, so we had some time to kill."

"It looks great," Simon said. And it did: alien monument, dream visitation, it glowed like flesh in the long dusk, as if blood ran under its ice. "A temple to Ares."

"To Neptune," corrected George. "We don't want to invoke Ares too often, I don't think."

"Especially given the crowd at base camp," Ann said.

###

As they drove south their road of tracks and transponders ran ahead of them, as distinct as any highway of paved concrete. It did not take Ann to point out how much this changed the feel of their travel; they were no longer exploring untouched land, and the nature of the landscape itself was altered, split left and right by the parallel lines of crosshatched wheel tracks, and by the green canisters slightly dimmed by a rime of dust, all marking for them "the way." It wasn't wilderness any more; that was the point of road-building, after all. They could leave the driving to Rover One's automatic pilot, and often did.

So they were trundling along at thirty kph, with nothing to do but look at the bisected view, or talk, which they did infrequently, except on the

There before them was a flat white sheet, covering their road for nearly a hundred meters. "What is it?" George cried.

"Our permafrost pump," Nadia said, pointing. "It must have broken."

"Or worked too well!" Simon said. "That's water ice!"

They switched the rover to manual, drove nearer. The spill covered the road like a wash of white lava. They struggled into their walkers and and got out of the module, walked over to the edge of the spill.

"Our own ice rink," Nadia said, and went to the pump. She unhooked the insulation pad had a look inside. "Ah ha-a gap in the insulation-water froze right here, and jammed the stopcock in the open position. A good head of pressure, I'd say. Ran till it froze thick enough to stop it. A tap from a hammer might get us our own little geyser."

She went to her tool cabinet in the underside of the module, took out a pick. "Watch out!" She struck a single blow at the white mass of ice, where the pump joined the tank feeder pipe. A thick bolt of water squirted a meter into the air. "Wow!" It splashed down onto the white sheet of ice, steaming even though it froze within seconds, making a white lobate leaf on top of the ice already there. "Look at that!" The hole too froze over, and the stream of water stopped, and the steam blew away.

"Look how fast it froze!"

"Looks just like those splosh craters," Nadia remarked, grinning. It had been a beautiful sight, water spilling out and steaming like mad as it froze.

Nadia chipped away at the ice around the stopvalve; Ann and Phyllis argued about migration of permafrost, quantities of water at this latitude, etc. etc. One would think they'd get sick of it. But they really did dislike each other, and so they were helpless to stop. It would be the last trip they ever took together, no doubt about it. Nadia herself would be disinclined to travel with Phyllis and George and Edvard anymore, they were too complacent, too much a little in-group of their own. But Ann was alienated from quite a few other people as well; if she didn't watch out, she'd be without anyone at all to accompany her on trips. Frank, for instance-that comment to him the other night, and then telling Phyllis of all people how horrible he was; incredible.

They put a few chunks of the ice spill in among the rest of the samples, and set out four transponders to guide robot pilots around the spill. "Although it may sublime away, right?" Nadia said.

Ann, lost in thought, didn't hear the question. "There's a lot of water up here," she muttered to herself, sounding worried.

"You're damned right there is," Phyllis exclaimed. "Now why don't we have a look at those deposits we've spotted at the north end of Mareotis?"

###

As they got closer to base Ann became more close-mouthed and solitary, her face held tight as a mask. "What's the matter?" Nadia asked one evening, when they were out together near sunset, fixing a defective transponder.

"I don't want to go back," Ann said. She was kneeling by an isolated rock, chipping at it. "I don't want this trip to end. I'd like to keep traveling all the time, down into the canyons, up to the volcano rims, into the chaos and the mountains around Hellas. I don't ever want to stop."

She sighed. "But. . . I'm part of the team. So I have to climb back into the hovel with everyone else."

"Is it really that bad?" Nadia said, thinking of her beautiful barrel vaults, of the steaming whirlpool bath and a glass of icy vodka.

"You know it is! Twenty-four and a half hours a day, underground in those little rooms, with Maya and Frank running their political schemes, and Arkady and Phyllis fighting over everything, which I understand now, believe me-and George complaining and John floating in a fog and Hiroko obsessed by her little empire-Vlad too, Sax too-. . . I mean, what a crowd!"

"They're no worse than any other. No worse and no better. You have to get along. You couldn't be here all by yourself."

"No. But it feels like I'm not here anyway, when I'm at the base. Might as well be back on the ship!"

"No, no," Nadia said. "You're forgetting." She kicked the rock Ann was working on, and Ann looked up in surprise. "You can kick rocks, see? We're here, Ann. Here on Mars, standing on it. And every day you can go

live on it and learn it. But when I do that, I change it-I destroy what it is, what I love in it. This road we made, it hurts me to see it! And base camp is like an open pit mine, in the middle of a desert never touched since time began. So ugly, so. . . . I don't want to do that to all of Mars, Nadia, I don't. I'd rather die. Let the planet be, leave it wilderness and let radiation do what it will. It's only a statistical matter anyway, I mean if it raises my chance of cancer to one in ten, then nine times out of ten I'm all right!"

"Fine for you," Nadia said. "Or for any individual. But for the group, for all the living things here-the genetic damage, you know. Over time it would cripple us. So, you know, you can't just think of yourself."

"Part of a team," Ann said dully.

"Well, you are."

"I know." She sighed. "We'll all say that. We'll all go on and make the place safe. Roads, cities. New sky, new soil. Until it's all some kind of Siberia or Northwest Territories, and Mars will be gone and we'll be here, and we'll wonder why we feel so empty. Why when we look at the land we can never see anything but our own faces."

On the sixty-second day of their expedition they saw plumes of smoke over the southern horizon, strands of brown, gray, white and black rising and mixing, billowing into a flat-topped mushroom cloud that wisped off to the east. "Home again home again," Phyllis said cheerily.

Their tracks from the trip out, half-filled by dust, led them back toward the smoke: through the freight landing zone, across ground crisscrossed with treadmarks, across ground trampled to light red sand, past ditches and mounds, pits and piles, and finally to the great raw mound of the permanent habitat, a square earthen redoubt now topped by a silvery network of magnesium beams. That sight piqued Nadia's interest, but as they rolled on in she could not help noticing the litter of frames, crates, tractors, cranes, spare part dumps, garbage dumps, windmills, solar panels, water towers, concrete roads leading east west and south, air miners, the low

especially if Phyllis said anything more. But Phyllis kept her mouth shut, and they rolled into the tractor lot outside the northern garage and stopped. The expedition was over.

One by one they plugged the rovers into the wall of the garage and crawled through the doors. Familiar faces crowded around, Maya and Frank and Michel and Sax and John and Ursula and Spencer and Hiroko and all the rest, like brothers and sisters really, but so many of them that Nadia was overwhelmed, she shrivelled like a touched anemone, and had trouble talking. She wanted to grasp something she could feel escaping her, she looked around for Ann and Simon, but they were trapped by another group and seemed stunned, Ann stoical, a mask of herself.

Phyllis told their story for them. "It was nice, really spectacular, the sun shone all the time, and the ice is really there, we've got access to a lot of water, it's like the Arctic when you're up on that polar cap. . . ."

"Did you find any phosphorus?" Hiroko asked. Wonderful to see Hiroko's face, worried about the shortage of phosphorus for her plants. Ann told her that she had found drifts of sulphates in the light material around the craters in Acidalia, so they went off together to look at the samples. Nadia followed the others down the concrete-walled underground passageway to the permanent habitat, thinking about a real shower and fresh vegetables, half-listening to Maya give her the latest news. She was home.

###

Back to work; and as before, it was unrelenting and many-faceted, an endless list of things to do, and never enough time, because even though some tasks took much less human time than Nadia had expected, being robot-adequate, everything else took much more. And none of it gave her the same joy as building the barrel vault chambers had, even if it was interesting in the technical sense.

If they wanted the central square under the dome to be any use, they had to lay foundation that from bottom to top was composed of gravel, concrete, gravel, fiberglass, regolith, and finally treated soil. The dome itself would be made of double panes of thick treated glass, to hold the pressure and to cut down on UV rays, and a certain percentage of cosmic

than ever. Vlad and Ursula and rest of the medical team were absorbed in research almost to the exclusion of clinical work with the colonists, which made Frank furious; and the genetic engineers spent all their time out in the converted trailer park, in the labs.

And yet Michel was behaving as if nothing were abnormal, as if he were not the psychological officer for the colony; he spent a lot of time watching French TV. When Nadia asked him about Frank and John, he only looked blankly at her.

They had been on Mars for 420 days; the first seconds of their universe were past. They no longer gathered to plot the next days' work, or discuss what they were doing. "Too busy," people said to Nadia when she asked. "Well, it's too involved to describe, you know, it'd put you to sleep. It does me." And so on.

And then at odd moments she would see in her mind's eye the black dunes, the white ice, the silhouetted figures against a sunset sky. She would shiver and come to with a sigh. Ann had already arranged another trip and was gone, this time south to the northernmost arms of great Valles Marineris, to see more unimaginable marvels. But Nadia was needed at base camp, whether she wanted to be out with Ann in the canyons or not. Maya complained about how much Ann was away. "It's clear she and Simon have started something and are just out there having a honeymoon while we slave away in here." That was Maya's way of looking at things, that would be what it would take to make Maya as happy as Ann sounded in her calls. But Ann was in the canyons, and that was all that was needed to make her sound that way. If she and Simon had started something it would only be a natural extension of that, and Nadia hoped it was true, she knew that Simon loved her, and she had felt the presence of an immense solitude in Ann, something that needed a human contact. If only she could join them again!

But she had to work. So she worked, she bossed people around the construction sights, she stalked the building sites and snapped at her friends' sloppy work. Her injured hand had regained some strength during

centerpoint dot. Arkady had been working on the descent program, apparently with good results.

He climbed out of the lander's hatch about twenty minutes later, and stood upright on the top step, looking around. He descended the staircase confidently, and once on the ground bounced experimentally on the tips of his toes, took a few steps, then spun around, arms wide. Nadia had a sudden sharp memory of how it had felt, that hollow sensation. Then he fell over. She hurried over to him, and he saw her and stood and made straight for her and tripped again across the rough Portland cement. She helped pull him back to his feet, and they met in a hug and staggered, him in a big pressurized suit, her in a walker. His hairy face looked shockingly real through their faceplates; the video had made her forget the third dimension and all the rest that made reality so vivid, so real. He banged his faceplate lightly against hers, grinning his wild grin. She could feel the stretch of a similar smile on her face.

He pointed at his wrist console and switched to their private band, 4224, and she did the same.

"Welcome to Mars."

Alex and Janet and Roger had come down with Arkady, and when they were all out of the lander they climbed into the open carriage of one of the Model Ts, and Nadia drove them back to base, over the wide paved road at first, and then shortcutting through the Alchemists' Quarter. She told them about each building they passed, aware that they already recognized them all. Suddenly she was nervous, remembering what it had looked like to her after the trip to the pole. They stopped at the garage lock and she led them inside. There it was another family reunion.

Later that day Nadia led Arkady around the square of vaulted chambers, through door after door, room after furnished room, all twenty-four of them; and then out into the atrium. The sky was a ruby color through the glass panels, and the magnesium struts gleamed like tarnished silver.

"Well?" Nadia said at last, unable to stop herself: "What do you think?"

like the stars in the sky, or a room on fire. Every room is a work of art, wait till you see it!"

"I look forward to it." Nadia shook her head, smiling at him.

That evening they had a big communal dinner in the four connected chambers that formed the largest room in the complex. They ate chicken and soyburgers and large salads, and everyone talked at once, so that it was reminiscent of the best months on Ares, or even of Antarctica. Arkady stood to tell them about the work on Phobos. "I am glad to be in Underhill at last." They were nearly done doming Stickney, he told them, and under it long galleries had been drilled into the fractured and brecciated rock, following ice veins right through the moon. "If it weren't for the lack of gravity, it would be a great place," Arkady concluded. "But that's one we can't solve. We spent most of our free time on Nadia's gravity train, but it's cramped, and meanwhile all the work is in Stickney or below it. So we spent too much time weightless or exercising, and even so we lost strength; even martian gee makes me tired now, I'm dizzy right now."

"You're always dizzy!"

"So we must rotate crews there, or run it by robot. We are thinking of all coming down for good. We've done our part up there, a functioning space station is now available for those who follow. Now we want our reward down here!" He raised his glass.

Frank and Maya frowned. No one would want to go up to Phobos, and yet Houston and Baikonur wanted it manned at all times. Maya had that look on her face familiar from the Ares, the one that said it was all Arkady's fault; when Arkady saw it he burst out laughing.

The next day Nadia and several others took him on a more detailed tour of Underhill and the surrounding facilities, and he spent the whole time nodding his head with that pop-eyed look of his that made you want to nod back while he said, "Yes, but, yes, but," and went into one detailed critique after another, until even Nadia began to get annoyed with him. Although it was hard to deny that the Underhill area was battered, thrashed to the horizon in every direction, so that it seemed as if it continued outward over the whole planet.

whatever they want. All the factories in the Alchemists' Quarter look like outhouses or discarded sardine tins. Brick around them would help insulate them, so there is a good scientific reason for it, but truthfully it's just as important that they look good, that it looks like home here. I've already lived too long in a country that thought only of utility. We must show that we value more than that here, yes?"

"No matter what we do to the buildings," Maya pointed out sharply, "the ground around them will still be all ripped up."

"But not necessarily! Look, when construction is over, it would be very possible to grade the ground right back to its original configuration, and then cast loose rock over the surface in a way that would imitate the aboriginal plain. Dust storms would deposit the required fines soon enough, and then if people walked on pathways, and vehicles ran on roads or tracks, soon it would have the look of the original ground, occupied here and there by colorful mosaic buildings, and glass domes stuffed with greenery, and yellow brick roads or whatnot. Of course we must do it! It is a matter of spirit! And that's not to say it could have been done earlier, the infrastructure had to be installed, that's always messy, but now we are ready for the art of architecture, the spirit of it."

He waved his hands around, stopped suddenly, popped his eyes at the dubious expressions framed in the faceplates around him. "Well, it's an idea, yes?"

Yes, Nadia thought, looking around with interest, trying to visualize it. Perhaps that kind of process would bring back her pleasure in the work? Perhaps it would look different to Ann then? She wasn't sure.

"More ideas from Arkady," as Maya put it in the pool that night, looking sour. "Just what we need."

"But they're good ideas," Nadia said. She got out, showered, put on a jumper.

Later that night she met Arkady again, and took him to see the northwest corner chamber of Underhill, which she had left bare-walled so she could show him the structural detail.

Yes, that should be possible. . . . And they tapped at the computer screen, altering the architectural sketch as they spoke.

Later they walked in the domed atrium. They stood under tall clusters of black bamboo leaves, the plants still in pots while the ground was prepared. It was quiet and dark.

"We could perhaps lower this area one story," Arkady said softly. "Cut windows and doors into your vaults, and lighten them up."

Nadia nodded. "We thought of that, and we're going to do it, but it's slow getting so much dirt out through locks." She looked at him. "But what about us, Arkady? So far you've only talked about the infrastructure. I should have thought that beautifying buildings would be pretty low down on your list of things to do."

Arkady grinned. "Well, maybe all the things higher on the list are already done."

"What? Did I hear Arkady Nikelyovich say that?"

"Well, you know-I don't complain just to complain, Ms. Nine Fingers. And the way things have been going down here, it's very close to what I was calling for during the voyage out. Close enough that it would be stupid to complain."

"I must admit you surprise me."

"Do I? But think about how you all have been working together here, this last year."

"Half a year."

He laughed. "Half a year. And for all that time we have had no leaders, really. Those nightly meetings when everyone has their say, and the group decides what needs doing most; that's how it should be. And no one is wasting time buying or selling, because there is no market. Everything here belongs to all equally. And yet none of us can exploit anything that we own, for there's no one outside us to sell it to. It's been a very communal society, a democratic group. All for one and one for all."

Nadia sighed. "Things have changed, Arkady. It's not like that anymore. And it's changing more all the time. So it won't last."

"Why do you say that?" he cried. "It will last if we decide that it will."

newly exposed knuckle at the base of the ring finger a kiss. "You've got strong hands, Ms. Nine Fingers."

"I did before this," she said, making a fist and holding it up.

"Someday Vlad will grow you a new finger," he said, and took the fist and opened it, then held the hand as they continued to walk. "This reminds me of the arboretum in Sebastopol," he said.

"Mmm," Nadia said, not really listening, intent on the warm heft of his hand in hers, in the tight intermingling of their fingers. He had strong hands too. She was fifty-one years old, a round little Russian woman with gray hair, a construction worker with missing fingers. So nice to feel the warmth of another body; it had been too long, and her hand soaked up the feeling like a sponge, until the poor thing tingled, full and warm. It must feel odd to him, she thought, then gave up on it. "I'm glad you're here," she said.

###

Having Arkady at Underhill made it like the hour before a thunderstorm. He made people think about what they were doing; habits that they had fallen into without thought came under scrutiny, and under this new pressure some became defensive, others aggressive. All the standing arguments got a bit more intense. Naturally this included the terraforming debate.

Now this debate was in no sense a single event but was rather an ongoing process, a topic that kept coming up, a matter of casual exchanges between individuals, out working, eating meals, falling asleep. Any number of things could bring it up: the sight of the white frost plume over Chernobyl; the arrival of a robot-driven rover, laden with water ice from the polar station; clouds in the dawn sky. Seeing these or many other phenomena someone would say "That'll add some BTUs to the system," or "Isn't that a good greenhouse gas," and perhaps a discussion of the technical aspects of the problem would follow. Sometimes the subject would come back up in the evenings back in Underhill, leading from the technical to the philosophical; and sometimes this led to long and heated arguments.

TV specials and interviews following touchdown, they had tended to forget the ongoing video transmissions, absorbed in the daily reality of their lives. But the video cameras were still shooting tape to send back home; and there were a lot of people on Earth who were fans of the show.

So nearly everyone had an opinion. Polls showed that most supported the Russell Program, an informal name for Sax's plans to terraform the planet by all means possible, as fast as they could. But the minority who backed Ann's hands-off attitude tended to be more vehement in their belief, insisting that it had immediate applications to the Antarctic policy, and indeed to all terran environmental policy. Meanwhile different poll questions made it clear that many people were fascinated by Hiroko and the farming project, while others called themselves Bogdanovists; Arkady had been sending back lots of video from Phobos, and Phobos was good video, a real spectacle of architecture and engineering. New terran hotels and commercial complexes were already imitating some of its features, there was an architectural movement called Bogdanovism, as well as other movements interested in him that were more concentrated on social and economic reforms in the world order.

But terraforming was near the center of all these debates, and the colonists' disagreements about it were played out on the largest possible public stage. Some of them reacted by avoiding the cameras and requests for interviews; "It's just what I came to get away from," Hiroko's assistant Iwao said, and quite a few agreed with him. Most of the rest didn't care one way or the other; a few seemed actually to like it. Phyllis's weekly program, for instance, was carried by both Christian cable stations and business analysis programs all over the world. But no matter how they dealt with it, looking at the polls and listening to the talk made it obvious that most people on Earth and on Mars assumed that terraforming would take place. It was not a question of whether but of when, and how much. Among the colonists themselves this was nearly the universal view. Very few sided with Ann: Simon of course; perhaps Ursula and Sasha; perhaps Hiroko; in his way John, and now in her way Nadia. There were more of these "reds" back on Earth, but they necessarily held the position as a theory, an

suppose. But even if there is life down there, we could search for ten thousand years and never find it, nor eliminate the possibility it isn't down there somewhere else, somewhere we haven't looked. So waiting until we know for sure that there is no life-" which was a fairly common position among moderates- "effectively means waiting forever. For a remote possibility which terraforming wouldn't immediately endanger anyway."

"Of course it would," Ann would retort. "Maybe not immediately, but eventually the permafrost would melt, there would be movement through the hydrosphere, and contamination of all of it by warmer water and terran lifeforms, bacteria, viruses, algae. It might take a while, but it would surely happen. And we can't risk that."

Sax would shrug. "First, it's postulated life, very low probability. Second, it wouldn't be endangered for centuries. We could presumably locate it and protect it in that time."

"But we may not be able to find it."

"So we stop for low-probability life we can never actually find?"

Ann shrugged. "We have to, unless you want to argue that it's okay to destroy life on other planets, as long as we can't find it. And don't forget; indigenous life on Mars would be the biggest story of all time, it would have implications for the galactic frequency of life that are impossible to exaggerate. Looking for life is one of the main reasons we're here!"

"Well," Sax would say, "in the meantime, life that we are quite sure exists is being exposed to an extraordinarily high amount of radiation. If we don't do something to lessen it, we may not be able to stay here. We need a thicker atmosphere to cut down on radiation."

This was not a reply to Ann's point but the substitution of another one, and it was an argument that was very influential. Millions on Earth wanted to come to Mars, to the "new frontier," where life was an adventure again; waiting lists for emigration both real and fake were massively oversubscribed. But no one wanted to live in a bath of mutagenic radiation; and the practical desire to make the planet safe for humans was stronger in most people than the desire to preserve the lifeless landscape already

was sure, estimates of the time it would take to get to a "human-viable surface" ranged from a century to ten thousand years, with extreme opinions on either end, from thirty years (Phyllis) to a hundred thousand years (Iwao). Phyllis would say, "God gave us this planet to make in our image, to create a new Eden." Simon would say, "If the permafrost melts we'd be living on a collapsing landscape, and a lot of us would be killed." Arguments wandered over a wide range of issues: salt levels, peroxide levels, radiation levels, the look of the land, possibly lethal mutations of genetically engineered microorganisms, and so on.

"We can try to model it," Sax said, "but the truth is we'll never be able to model it adequately. It's too big, and there's too many factors, many of them unknown. But what we will learn from it will be useful in controlling Earth's climate, in avoiding global warming or a future ice age. It's an experiment, a big one, and it will always be an ongoing experiment, with nothing guaranteed or known for sure. But that's what science is."

People would nod at this.

Arkady as always was thinking of the political point of view. "We can never be self-sufficient unless we do terraforming," he pointed out. "We need to terraform in order to make it ours, so that we will have the material basis for independence."

People would roll their eyes at this. But it meant that Sax and Arkady were allies of a sort, and that was a powerful combination. And so the arguments would go around, again and again and again, endlessly.

And now Underhill was nearly complete, a functioning and in most ways a self-sufficient village. Now it was possible to act further; now they had to decide what to do next. And most of them wanted to terraform. Any number of projects had been proposed to begin the process, with advocates for each, usually those who would be responsible for doing it. This was an important part of terraforming's attraction; every discipline could contribute to the enterprise in one way or another, so it had broad-based support. The alchemists talked about physical and mechanical means to add heat to the system; the climatologists debated influencing the weather; the biosphere team talked about ecological systems theories to be

the various dishes were producing." Arkady looked at every screen closely, but there wasn't that much to see: their old quarters, covered with plastic cubicles filled with red dirt; robot arms extending from their bases against the walls. There were visible growths on part of the soil, a bluish furze.

"That's our champion so far," Vlad said. "But still only slightly areophylic." They were selecting for a number of extreme characteristics, including resistance to cold and dehydration and UV radiation, tolerance for salts, little need for oxygen, a habitat of rock or soil. No single terran organism had all these traits, and those that had them individually were usually very slow growers; but the engineers had started what Vlad called a mix and match program, and recently they had come up with a variant of the cyanophyte that was sometimes called bluegreen algae. "It is not precisely thriving, but it does not die so fast, let us put it that way." They had named it cyanophyte primares, its common name becoming Underhill algae. They wanted to make a field trial with it, and had prepared a proposal to send down to UNOMA.

Arkady left the trailer park excited by the visit, Nadia could see; and that night he said to the dinner group, "We should make the decision on our own, and if we decide in favor, act."

Maya and Frank were outraged by this, and clearly most of the rest were uncomfortable as well. Maya insisted on a change of subject, and awkwardly the dinner conversation shifted. And the next morning Maya and Frank came to Nadia, to talk about Arkady. The two leaders had already tried to reason with him, late the night before. "He laughs in our face!" Maya exclaimed. "It's useless to try to reason with him!"

"What he proposes could be very dangerous," Frank said. "If we explicitly disregard a directive from the UN, they could conceivably come here and round us up and ship us home, and replace us with people who will pay attention to the law. I mean, biological contamination of this environment is simply illegal at this point, and we don't have the right to ignore that. It's international treaty. It's how humanity in general wants to treat this planet at this time."

"Can't you talk to him?" Maya asked.

Come on," Nadia said, pulling her hand free. "Cave isn't.

Arkady laughed. "Still, it's a serious question. We don't have forever, and it would be nice to see things start to change."

"Even so, why not wait a year?"

"A terran year or a martian year?"

"A martian year. Get readings on all the seasons, give the UN time to come around."

"We don't need the readings, they've been taken now for years."

"Have you talked to Ann about that?"

"No. Well, sort of. But she doesn't agree."

"A lot of people don't agree. I mean maybe they will eventually, but you have to convince them. You can't just run roughshod over opposing opinions, otherwise you're just as bad as the people back home that you're always criticizing."

Arkady sighed. "Yeah yeah."

"Well, aren't you?"

"You damned liberals."

"I don't know what that means."

"It means you're too soft-hearted to ever actually do anything."

But they were now within sight of the low mound of Underhill, looking like a fresh squarish crater, its ejecta scattered around it. Nadia pointed at it. "I did that. You damned radicals-" she jabbed him in the ribs with her elbow, hard- "you hate liberalism because it works."

He snorted.

"It does! It works in increments, over time, after hard labor, without fireworks or easy dramatics or people getting hurt. Without your sexy revolutions and all the pain and hatred they bring. It only works."

"Ah, Nadia." He put his arm over her shoulders, and they started walking again toward base. "Earth is a perfectly liberal world. But half of it is starving, and always has been, and always will be. Very liberally."

###

Still, Nadia seemed to have affected him; he quit calling for a unilateral decision to release the new GEMs onto the surface, and he confined the

of the days were the usual round of work, Nadia seldom saw Arkady again till evenings at dinner, or afterward.

Then Sax and Spencer and Rya finished setting up the robot factory for making Sax's windmill heaters, and they applied to UNOMA for permission to distribute a thousand of them around the equatorial regions, to test their warming effect. All of them together were only expected to add about twice the heat to the atmosphere that Chernobyl did, and there were even questions as to whether they would be able to distinguish the added heat from background seasonal fluctuations; but as Sax said, they wouldn't know until they tried. And there was no doubt that the heaters would add some heat to the surface, detectable or not.

And so the terraforming argument flared again. And suddenly Ann flew into violent action, taping long messages that she sent to the members of UNOMA's executive committee, and to the national offices for Martian affairs for all the countries that were currently on the committee; and finally to the UN General Assembly. These appearances were given enormous amounts of attention, from the most serious policy-making levels all the way down to the tabloid press and TV, media that regarded it as the newest episode of the red soap opera. Ann had taped and sent her messages in private, so the colonists learned of them by seeing excerpts on terran TV, and watching the reaction to them in the days that followed: debates in government, a rally in Washington that drew twenty thousand; endless amounts of editorial space, and commentary in the scientific nets. It was a bit shocking to see the strength of these responses, and some of them felt Ann had gone behind their backs. Phyllis for one was outraged.

"Besides, it doesn't make sense," Sax said, blinking rapidly. "Chernobyl is already releasing almost as much heat into the atmosphere as these windmills, and she never complained about that."

"Yes she did," Nadia said. "She just lost the vote."

Hearings were held at UNOMA, and while they were going on a group of the materials scientists confronted Ann after dinner. A lot of the rest of them were there to witness this confrontation; Underhill's main dining hall filled four chambers, whose dividing walls had been removed and replaced

while the whole time an entire world sits outside your door. A world where the landforms are a hundred times larger than their equivalents on Earth, and a thousand times older, with evidence concerning the beginning of the solar system scattered all over, as well as the whole history of a planet, scarcely changed in the last billion years. And you're going to wreck it all. And without ever honestly admitting what you're doing, either. Because we could live here and study the planet without changing it—we could do that with very little harm or even inconvenience to ourselves. All this talk of radiation is bullshit and you know it. There's simply not a high enough level of it to justify this mass alteration of the environment. You want to do that because you think you can. You want to try it out and see—as if this were some big playground sandbox for you to build castles in. A big Mars jar! You find your justifications where you can, but it's bad faith, and it's not science."

Her face had gone bright red during this tirade; Nadia had never seen her anywhere near as angry as this. The usual matter-of-fact facade that she placed over her bitter anger had shattered, and she was almost speechless with fury, she was shuddering. The whole room had gone deadily quiet. "It's not science, I say! It's just playing around. And for that game you're going to wreck the historical record, destroy the polar caps, and the outflow channels, and the canyon bottoms—destroy a beautiful pure landscape, and for nothing at all."

The room was as still as a tableau, they were like stone statues of themselves. The ventilators hummed. People began to eye one another warily. Simon took a step toward Ann, his hand outstretched; she stopped him dead with a glance, he might as well have stepped outside in his underwear and frozen stiff. His face reddened, and he cracked his posture and sat back down.

Sax Russell rose to his feet. He looked the same as ever, perhaps a bit more flushed than usual, but mild, small, blinking owlishly, his voice calm and dry, as if lecturing on some textbook point of thermodynamics, or enumerating the periodic table.

He paused to look around at them all. Nadia gulped, it was strange in the extreme to hear these words come out of the mouth of Sax Russell, in the same dry tone that he would use to analyze a graph. Too strange!

"Now that we are here," he went on, "it isn't enough to just hide under ten meters of soil and study the rock. That's science, yes, and needed science too. But science is more than that. Science is part of a larger human enterprise, and that enterprise includes going to the stars, adapting to other planets, adapting them to us. Science is creation. The lack of life here, and the lack of any finding in fifty years of the SETI program, indicates that life is rare, and intelligent life even rarer. And yet the whole meaning of the universe, its beauty, is contained in the consciousness of intelligent life. We are the consciousness of the universe, and our job is to spread that around, to go look at things, to live everywhere we can. It's too dangerous to keep the consciousness of the universe on only one planet, it could be wiped out. And so now we're on two, three if you count the moon. And we can change this one to make it safer to live on. Changing it won't destroy it. Reading its past might get harder, but the beauty of it won't go away. If there are lakes, or forests, or glaciers, how does that diminish Mars's beauty? I don't think it does. I think it only enhances it. It adds life, the most beautiful system of all. But nothing life can do will bring Tharsis down, or fill Marineris. Mars will always remain Mars, different from Earth, colder and wilder. But it can be Mars and ours at the same time. And it will be. There is this about the human mind; if it can be done, it will be done. We can transform Mars and build it like you would build a cathedral, as a monument to humanity and the universe both. We can do it, so we will do it. So-" he held up a palm, as if satisfied that the analysis had been supported by the data in the graph-as if he had examined the periodic table, and found that it still held true- "we might as well start."

He looked at Ann, and all eyes followed her. Ann's mouth was tight, her shoulders slumped. She knew she was beaten.

She shrugged, as if she were shrugging a hooded cape back over her head and body, a heavy carapace that weighed her down, and covered her entirely from them. In the flat dead tone that she usually employed when

environmental alterations approved the dissemination of the heater windmills.

###

The plan was to drop them from dirigibles. Arkady immediately claimed the right to pilot one, as a sort of reward for his work on Phobos. Maya and Frank were not unhappy at the thought of Arkady disappearing from Underhill for another month or two, so they immediately assigned him one of the craft. He would drift east in the prevailing winds, descending to place windmills in channel beds and on the outer flanks of craters, both places where winds tended to be strong. Nadia first heard of the expedition when Arkady skipped through the chambers to her and told her about it.

"Sounds nice," she said.

"Want to come along?" he asked.

"Why yes," she said. Her ghost finger was tingling.

Their dirigible was the biggest ever made, a planetary model built back in Germany by Friedrichshafen Nach Einmal, and shipped up in 2029, so that it had just recently arrived. It was called the Arrowhead, and it measured 120 meters across the wings, a hundred meters front to back, and forty meters tall. It had an internal ultralite frame, and turboprops at each wingtip and under the gondola; these were driven by small plastic engines whose batteries were powered by solar cells arrayed on the upper surface of the bag. The pencil-shaped gondola extended most of the length of the underside, but it was smaller inside than Nadia had expected, because much of it was temporarily filled with their cargo of windmills; at takeoff their clear space consisted of nothing more than the cockpit, two narrow beds, a tiny kitchen, an even smaller toilet, and the crawlspace necessary to move among these. It was pretty tight, but happily both sides of the gondola were walled with windows, and though somewhat blocked by windmills these still gave them a lot of light, and good visibility.

blood time after time. Underhill sat at the center of the wound, and by itself was a pretty sight, a square dark red setting for a shiny glass-and-silver jewel, with green just visible under the dome. Extending away from it were the roads east to Chernobyl and north to the spacepads. And over there were the long bulbs of the greenhouses, and there was the trailer park-

"The Alchemists' Quarter still looks like something out of the Urals," Arkady said. "We really have to do something about that." He brought the dirigible out of its turn and headed east, moving with the wind. "Should I run us over Chernobyl and catch the updraft?"

"Why don't we see what this thing can do unassisted," Nadia said. She felt light, as if the hydrogen in the ballonets had filled her as well. The view was stupendous, the hazy horizon perhaps a hundred kilometers away, the contours of the land all clearly visible: the subtle bumps and hollows of Lunae, the more prominent hills and canyons of the channeled terrain to the east. "Oh, this is going to be wonderful!"

"Yes."

It was remarkable, in fact, that they had not done anything like this before. But flying on Mars was no easy thing, because of the thin atmosphere. They were in the best solution: a dirigible as big and light as possible, filled with hydrogen, which in martian air was not only not flammable, but also even lighter relative to its surroundings than it would have been on Earth. Hydrogen and the latest in superlight materials gave them the necessary lift to carry a cargo like their windmills, but with such a cargo aboard they were ludicrously sluggish, and everything happened in extreme slow motion.

And so they drifted along. All that day they crossed the rolling plain of Lunae Planum, pushed southeast by the wind. For an hour or two they could see Juventia Chasm on the southern horizon, a gash of a canyon that looked like a giant pit mine. Farther east, the land turned yellowish; there was less surface rubble, and the underlying bedrock was more rumped. There were also many more craters, craters big and small, crisp-rimmed or nearly buried. This was Xanthe Terra, a high region that was

downwind of the anchor, tugging at it like a fat kite. Nadia and Arkady twisted down the length of the gondola, to what Arkady called the bomb bay. Nadia lifted a windmill onto the bay's winch hook. The windmill was a little thing, a magnesium box with four vertical vanes on a rod projecting from its top. It weighed about five kilos. They closed the bay door on it, sucked out the air, and opened the bottom doors. Arkady operated the winch, looking through a low window to see what he was doing. The windmill dropped like a plumb, and bumped onto hardened sand, on the southern flank of a small unnamed crater. He released the winch hook and reeled it back into the bay, and closed the bomb doors.

They returned to the cockpit, and looked down again to see if the windmill was working. There it stood, a small box on the outside slope of a crater, somewhat tilted, the four broad vertical blades spinning merrily. It looked like an anemometer from a kid's meteorology kit. The heating element, an exposed metal coil that would radiate like a stovetop, was on one side of the base. In a good wind the element might get up to two hundred degrees centigrade, which wasn't bad, especially in that ambient temperature. Still. . . . "It's going to take a lot of those to make any difference," Nadia remarked.

"Sure, but every little bit helps, and in a way it's free heat. Not only the wind powering the heaters, but the sun powering the factories making the windmills. I think they're a good idea."

They stopped once more that afternoon to set out another one, then anchored for the night in the lee of a crisp young crater. They microwaved a meal in the tiny kitchen, and then retired to their narrow bunks. It felt odd to rock on the wind, like a boat at its mooring: tug and float, tug and float. But it was very relaxing when you got used to it, and soon Nadia was asleep.

The next morning they woke before dawn, cast off, and motored up into the sunlight. From a hundred meters height they could watch the shadowed landscape below turn to bronze as the terminator rolled by and clear daylight followed, illuminating a fantastic jumble of bright rocks and long shadows. The morning wind pushed right to left across their bow, so

isolated ship rocks, as in Monument Valley—except here it lasted for four days, as they passed in succession over the unnamed channel, Shalbatana, Simud, Tiu, and then Ares. And all of them had been caused by giant floods, which had burst onto the surface and flowed for months, at rates ten thousand times that of the Mississippi. Nadia and Arkady talked about that as they looked down into the canyons under them, but it was very hard to imagine floods so huge. Now the big empty canyons funnelled nothing but wind. They did that quite well, however, so Arkady and Nadia descended into them a number of times per day, to drop more windmills.

Then east of Ares Vallis they floated back over the densely cratered terrain of Xanthe. Again the land was everywhere marred by craters: big craters, little craters, old craters, new craters, craters with rims marred by newer craters, craters with floors punctured by three or five smaller craters; craters as fresh as if they had struck yesterday; craters that just barely showed, at dawn and dusk, as buried arcs in the old plateau. They passed over Schiaparelli, a giant old crater a hundred kilometers across; when they floated over its central uplift knob, its crater walls formed their horizon, a perfect ring of hills around the edge of the world.

After that winds blew from the south for several days. They caught a glimpse of Cassini, another great old crater, and passed over hundreds of smaller ones. They dropped several windmills per day, but the flight was giving them a stronger sense of the size of the planet, and the project began to seem like a joke, as if they flew over Antarctica and tried to melt the ice by setting down a number of camping stoves. "You'd have to drop millions to make any difference," Nadia said as they climbed up from another drop.

"True," Arkady said. "But Sax would like to drop millions. He's got an automated assembly line that will just keep churning them out, it's only distribution that is a problem. And besides, it's just one part of the campaign he has in mind." He gestured back toward the last arc of Cassini, inscribing the whole northwest. "Sax would like to bang out a few more holes like that one. Capture some icy moonlets from Saturn, or from

I can't wait to hear what Ann says to that." She sighed, thought about it. "The thing to do, I suppose, would be to graze an ice asteroid through the atmosphere, as if trying to aerobrake it. That would burn it up without breaking the molecules apart. You'd get water vapor in the atmosphere, which would help, but you wouldn't be bombing the surface with explosions as big as a hundred hydrogen bombs going off all at once."

Arkady nodded. "Good idea! You should tell Sax."

"You tell him."

East of Cassini the terrain grew rougher than ever. This was some of the oldest surface on the planet, cratered to saturation in the earliest years of torrential bombardment. A hellish age, the Noachian, you could see that in the landscape. A No Man's Land from a Titanic trench war, the sight of it induced a kind of numbness after a while, a cosmological shell shock.

They floated on, east, northeast, southeast, south, northeast, west, east, east. They finally came to the end of Xanthe, and began to descend the long slope of Syrtis Major Planitia. This was a lava plain, much less densely cratered than Xanthe. The land sloped down and down, until finally they drifted over a smooth-floored basin: Isidis Planitia, one of the lowest points on Mars. It was the essence of the northern hemisphere, and after the southern highlands it seemed especially smooth and flat and low. And it too was a very large region. There really was a lot of land on Mars.

Then one morning when they lofted up to cruising altitude, a trio of peaks rose over the eastern horizon. They had come to Elysium, the only other Tharsislike "bulge continent" that the planet had. Elysium was a much smaller bulge than Tharsis, but it was still big, a high continent, one thousand kilometers long and ten kilometers taller than the surrounding terrain. As with Tharsis, it was ringed by patches of fractured land, crack systems caused by the uplift. They flew over the westernmost of these crack systems, Hephaestus Fossae, and found the area an unearthly sight: five long deep parallel canyons, like claw marks in the bedrock. Elysium loomed beyond, a saddleback in shape, Elysium Mons and Hecates Tholus rearing at each end of a long spine range, five thousand meters higher than the bulge they punctuated: an awesome sight. Everything about

No, it's a lot less steep. Why, did you ever see Fuji?

"No."

After a while: "Well, we'd better try to go around the whole damn thing," Arkady said. "I'm not sure we have the loft to get over those mountains."

So they turned the props, and pushed south as hard as they could, and the winds naturally cooperated, as they were curving around the continent too. So the Arrowhead floated southeast into a rough mountainous region called Cerberus; and all of the next day they could mark their progress by the sight of Elysium, passing slowly to their left. Hours passed, the massif shifted in their side windows; the slowness of the shift made it plain just how big this world was. Mars has as much land surface as the Earth—everyone always said that, but it had been just a phrase. Their creep around Elysium was the proof of the senses.

###

The days passed: up in the frigid morning air, over the jumbled red land, down in the sunset, to bounce at an airy anchorage. One evening when the supply of windmills had dwindled they rearranged those that remained, and moved their beds together under the starboard windows. They did it without discussion, as if it had been the obvious thing to do when they had room; as if they had already agreed to do it long before. And as they moved around the cramped gondola rearranging things, they bumped into each other just as they had all trip long, but now intentionally, and with a sensuous rubbing which accentuated what they had been up to all along, accidents become foreplay; and finally Arkady burst out laughing and caught her up into a wild bear hug, and Nadia shouldered him back onto their new double bed and they kissed like teenagers, and made love through the night. And after that they slept together, and made love frequently in the ruddy glow of dawn and in the starry black nights, with the ship lightly bobbing at its moorings. And they lay together talking, and the sensation of floating as they embraced was palpable, more romantic than any train or ship. "We became friends first," Arkady said once, "that's what makes this different, don't you think?" He prodded her with a finger. "I love you." It was as if he were testing the words with his tongue. It was clear to

"I said, why me? I mean, Arkady Nikelyovich, you could have loved any of the women here, and they would have loved you back. You could have had Maya if you wanted."

He snorted. "I could have had Maya! Oh my! I could have had the joy of Maya Katarina! Just like Frank and John!" He snorted, and they both laughed out loud. "How could I have passed on such joy! Silly me!" He giggled until she punched him.

"All right, all right. One of the others then, the beautiful ones, Janet or Ursula or Samantha."

"Come on," he said. He propped himself up on an elbow to look at her. "You really don't know what beauty is, do you?"

"I certainly do," Nadia said mulishly.

Arkady ignored her and said, "Beauty is power and elegance, right action, form fitting function, intelligence, and reasonability. And very often," he grinned and pushed at her belly, "expressed in curves."

"Curves I've got," Nadia said, pushing his hand away.

He leaned forward and tried to bite her breast, but she dodged him.

"Beauty is what you are, Nadezhda Francine. By these criteria you are queen of Mars."

"Princess of Mars," she corrected absently, thinking it over.

"Yes that's right. Nadezhda Francine Cherneshevsky, the nine-fingered Princess of Mars."

"You're not a conventional man."

"No!" He hooted. "I never claimed to be! Except before certain selection committees of course. A conventional man! Ah, ha ha ha ha ha!-the conventional men get Maya. That is their reward." And he laughed like a wild man.

###

One morning they crossed the last broken hills of Cerberus, and floated out over the flat dusty plain of Amazonis Planitia. Arkady brought the dirigible down, to set a windmill in a pass between two final hillocks of old Cerberus. Something went wrong with the clasp on the winch hook, however, and it snapped open when the windmill was only halfway to the

Just get me up there.

He closed the bomb bay doors after her, and met her as she was getting out of the sling. "What's up?"

She took off her helmet. "You know what's up, you bastard!" She took a swing at him and he leaped back, banging into a wall of windmills. "Ow!" he cried; a vane had caught him in the back. "Hey! What's the problem! Nadia!"

She took the bag from her walker pocket and waved it before him. "This is the problem! How could you do it? How could you lie to me? You bastard, do you have any idea what kind of trouble this is going to get us in? They'll come up here and send us all back to Earth!"

Round-eyed, Arkady rubbed his jaw. "I wouldn't lie to you, Nadia," he said earnestly. "I don't lie to my friends. Let me see that."

She stared at him and he stared back, his arm stretched out for the bag, the whites of his eyes visible all the way round the irises. He shrugged, and she frowned.

"You really don't know?" she demanded.

"Know what?"

She couldn't believe he would fake ignorance; it just wasn't his style. Which suddenly made things very strange. "At least some of our windmills are little algae farms."

"What?"

"The fucking windmills that we've been dropping everywhere," she said. "They're stuffed with Vlad's new algae or lichen or whatever it is. Look." She put the little bag on the tiny kitchen table, opened it and used the screwdriver to spoon out a little bit of it. Little knobby chunks of bluish lichen. Like Martian life forms out of an old pulp novel.

They stared at it.

"Well I'll be damned," Arkady said. He leaned over until his eyes were a centimeter from the stuff on the table.

"You swear you didn't know?" Nadia demanded.

"I swear. I wouldn't do that to you, Nadia. You know that."

Radio?

"Well I'll be damned." Arkady stood, walked up and down the narrow corridor. "I mean..."

"How many dirigible trips have been made so far, ten? Twenty? And all of them dropping these things?"

Arkady started to laugh. He tilted his head back, and his huge crazed grin split his red beard in two, and he laughed until he held his sides. "Ah, ha ha ha ha ha ha!"

Nadia, who didn't think it was funny at all, nevertheless felt her face grinning at the sight of him. "It's not funny!" she protested. "We're in big trouble!"

"Maybe," he said.

"Definitely! And it's all your fault! Some of those fool biologists in the trailer park took your anarchist rant seriously!"

"Well," he said, "that at least is a point in their favor, the bastards. I mean-" he went back to the kitchen table to stare at the clump of blue stuff-"who exactly do you think we're talking about, anyway? How many of our friends are in on this? And why in the world didn't they tell me?"

This really rankled, she could tell. In fact the more he thought about it, the less amused he was, because the algae meant there was a subculture in their group that was acting outside UNOMA supervision but had not let Arkady in on it, even though he had been the first and most vocal advocate of such subversion. What did that mean? Were there people who were on his side but didn't trust him? Were there dissidents with a competing program?

They had no way of telling. Eventually they pulled anchor, and sailed on over Amazonis. They passed a medium-sized crater named Pettit, and Arkady remarked that it would make a good site for a windmill, but Nadia only snarled. They flew by, talking the situation over. Certainly several people in the bioengineering labs had to be in on it; probably most of them; maybe all. And then Sax, the designer of the windmills, certainly had to be apart of it. And Hiroko had been an advocate of the windmills, but they had neither been sure why; it was impossible to judge whether she would

said.

"Johnny what?"

"American folk tale." He told her about it.

"Yeah, right. And now Paul Bunyon is going to come kick our ass."

"Ha. Never. Big Man is much bigger than Paul Bunyon, believe me."

"Big Man?"

"You know, all those names for landscape features. Big Man's Footprints, Big Man's Bathtub, Big Man's Golf Course, whatever."

"Ah yeah."

"Anyway, I don't see why we should get in trouble. We didn't know anything about it."

"Now who's going to believe that?"

". . . Good point. Those bastards, they really got me with this one."

Clearly this was what bothered Arkady most. Not that they had contaminated Mars with alien biota, but that he had been kept out of a secret. Men were such egomaniacs when it came down to it. And Arkady, he had his own group of friends, perhaps more than that: people who agreed with him, followers of a sort. The whole Phobos crew, a lot of the programmers in Underhill. And if some of his own people were keeping things from him, that was bad; but if another group had secret plans of its own, that was worse, apparently, because they were at least interference, and perhaps competition.

Or so he seemed to think. He wouldn't say much of this explicitly, but it became obvious in his mutterings, and his sudden sharp curses, which were genuine even though they alternated with bursts of hilarity. He couldn't seem to make up his mind whether he was pleased or angry, and Nadia finally believed that he was both at once. That was Arkady; he felt things freely and to the full, and wasn't much worried about consistency. But she wasn't too sure she liked his reasons this time, for either his anger or his amusement, and she told him so with considerable irritation.

"Well, but come on!" he cried. "Why should they keep it a secret from me, when it was my idea to begin with?"

couldn't explain why. I suppose, she said, thinking about it, I suppose I feel like there is this group around Hiroko, the whole farm team and a fair number of others, who respect her and... follow her. Even Ann, in a way. Although Ann will hate this when she hears about it! Whew! Anyway, it just seems to me that she would know about anything secret going on. Especially something having to do with ecological systems. The bioengineering group works with her most of the time, after all, and for some of them she's like a guru, they almost worship her. They probably got her advice when they were splicing this algae together!"

"Hmm. . . ."

"So they probably got her agreement for the idea. Maybe I should even say her permission."

Arkady nodded. "I see your point."

On and on they talked, hashing over every point of it. The land they passed over, flat and immobile, looked different to Nadia now. It was seeded, fertilized; it was going to change, now, inevitably. They talked about the other parts of Sax's terraforming plans, giant orbiting mirrors reflecting sunlight onto the dawn and dusk terminators, carbon distributed over the polar caps, areothermal heat, the ice asteroids. It was all really going to happen, it seemed. The debate had been bypassed; they were going to change the face of Mars.

###

The second evening after their momentous discovery, as they were cooking dinner at a crater's lee anchorage, they got a call from Underhill, relayed off one of the comm satellites. "Hey you two!" John Boone said by way of greeting. "We've got a problem!"

"You've got a problem," Nadia replied.

"Why, something wrong out there?"

"No no."

"Well good, because really it's you guys who have the problem, and I wouldn't want you to have more than one! A dust storm has started down in the Claritas Fossae region, and it's growing, and coming north at a good rate. We think it'll reach you in a day or so."

can get above the dust.

After some discussion with John, and then with Ann, they cast off. The wind was pushing them east-northeast, and on this heading they would pass just to the south of Olympus Mons. After that their hope was to get around the north flank of Tharsis, which would protect them from the dust storm for at least a while.

It seemed louder flying at night. The wind's rush over the fabric of the bag was a fluctuating moan, the sound of their engines a pitiful little hum. They sat in the cockpit, lit only by dim green instrument lights, and talked in low voices as they moved over the black land below. They had about three thousand kilometers to go before reaching Underhill; that was about three hundred hours of flying time. If they went round the clock, it would be twelve days or so. But the storm, if it grew in the usual pattern, would reach them long before then. After that... it was hard to tell how it would go. Without sunlight the props would drain the batteries, and then... "Can we just float on the wind?" Nadia said. "Use the props for occasional directional nudges?"

"Maybe. But these things are designed with the props as part of the lift, you know."

"Yeah." She made coffee and brought mugs of it up to the cockpit. They sat and drank, and looked out at the black landscape, or the green sweep of the little radar screen. "We probably ought to drop everything we don't need. Especially those damned windmills."

"It's all ballast, save it for when we need the lift."

The hours of the night wore on. They traded shifts at the helm, and Nadia caught an uneasy hour's sleep. When she returned to the cockpit, she saw that the black bulk of Tharsis had rolled over the horizon ahead of them: the two northernmost of the three prince volcanoes, Ascraeus Mons and Pavonis Mons, were visible as humps of occluded stars, out at the edge of the world. To their left Olympus Mons still bulked well above the horizon, and taken with the other two volcanoes, it looked as if they flew low in some truly gigantic canyon. The radar screen reproduced the view in miniature, in green lines on the screen's gridwork.

Arkady said, "The wind should hopefully wrap around the north shoulder of Tharsis."

Nadia nodded silently. They hadn't gotten the chance to recharge the batteries after the night's flight, and without sunlight the motors wouldn't run too much longer. "Hiroko told me sunlight on the ground during a storm is supposed to be about fifteen percent of normal," she said. "Higher there should be more. So we'll get some recharge, but it'll be slow. Could be that over the course of the day we might get enough use the props a bit tonight." She flicked on a computer to do the calculations. Something in the expression on Arkady's face—not fear, not even anxiety, but a curious little smile—made her aware of how much danger they were in. If they couldn't use the props, they wouldn't be able to direct their movement, and they might not even be able to stay aloft. They could descend, it was true, and try to anchor; but they had only a few weeks' more food, and storms like these often persisted for two months, sometimes three.

"There's Ascræus Mons," Arkady said, pointing at the radar screen. "Good image." He laughed. "Best view of it we're going to get this time around, I'm afraid. Too bad, I was really looking forward to seeing them! Remember Elysium?"

"Yeah yeah," Nadia said, busy running simulations of the batteries' efficiency. Daily sunlight was near its perihelion peak, which was why the storm had started in the first place; and the instruments said that about twenty percent of full daylight was penetrating to this level (it felt to her eye more like thirty or forty); therefore it might be possible to run the props half the time, which would help tremendously. Without them they were moving at around twelve kilometers per hour, and losing altitude as well, although that might just be the ground rising under them. With the props they might be able to hold a steady altitude, and influence their course by a degree or two.

"How thick is this dust, do you think?"

"How thick?"

"You know, grams per cubic meter. Try to get Ann or Hiroko on the radio and find out, will you?"

if it works. She rummaged through the tool kit, sadly smaller than her usual supply. The light in the gondola was eerie, a dim yellow glow flickering with every gust. The view out the side windows shifted from pockets of complete clarity, with thick yellow clouds like thunderheads flying past them, to complete obscurity, all the window surfaces streaming with dust that flashed by at well over three hundred kilometers per hour. Even at twelve millibars the blast of the wind was tossing the dirigible about; up in the cockpit Arkady was cursing the autopilot's insufficiency. "Reprogram it," Nadia called forward, and then remembered him and all his sadistic simulations on the Ares, and laughed out loud: "Problem run! Problem run!" She laughed again at his shouted curses, and went back to work. At least the wind would push them along faster. Arkady yelled back information from Ann: the dust was extremely fine, average particle size about 2.5 microns; total column mass about 10^{-3} grams per cm^{-2} , pretty evenly distributed from top to bottom of the column. That wasn't so bad; drop it on the ground and it would be a really thin layer, which was consistent with what they had seen on the oldest freight drops at Underhill.

When she had rewired a number of the windmills she banged down the passageway to the cockpit. "Ann says the winds will be slowest close to the ground," Arkady said.

"Good. We need to land to get those windmills outside."

So that afternoon they descended blind, and let the anchor drag until it hooked and held. The wind here was slower, but even so Nadia's descent in the sling was harrowing; down and down into rushing clouds of yellow dust, swinging back and forth. . . and there it was right under her boots, the ground! She hit and dragged to a halt. Once out of the sling she found herself leaning into the wind; thin as it was it still struck like blows, and her old feeling of hollowness was extreme. Visibility billowed back and forth in waves, and the dust flew past so fast it was disorienting; on Earth a wind that fast would simply pick you up and throw you, like a broomstraw in a tornado.

But here you could hold your ground, if only just. Arkady had been slowly winching the dirigible down on its the anchor line, and now it bulked

a trampoline— Then as she was finishing the wind picked up strength yet again, and she had to crawl back down to the bomb bay, her breath rasping in and out of her.

"The damn thing almost crushed me!" she shouted forward to Arkady when she had her helmet off. While he worked to unhook the anchor she staggered around the interior of the gondola, picking up things that they wouldn't need and taking them into the bomb bay: a lamp, one of the mattresses, most of the cooking utensils and dinnerware, some books, all the rock samples. In they went, and she jettisoned them happily. If some traveler ever came upon the resulting pile of stuff, she thought, they would really wonder what the hell had happened.

They had to run both props full out to get the anchor unhooked, and when they succeeded they were off and flying like a leaf in November. They kept the props on full, to gain altitude as fast as possible; there were some small volcanoes between Olympus and Tharsis, and Arkady wanted to pass several hundred meters over them. The radar screen showed Ascræus Mons falling steadily behind. When they were well north of it they could turn east, and try to chart a course around the northern flank of Tharsis, and then down to Underhill.

But as the long hours passed they found that the wind was rushing down the north slope of Tharsis, across their bow; so that even when running full power toward the southeast, they were still only moving northeast at best. In their attempts to fly across the wind the poor Arrowhead was bouncing like a hang glider, yanking them up and down, up and down, up and down, as if the gondola were indeed attached to the underside of a trampoline. But despite all that, they still weren't going in the direction they wanted to go.

Darkness fell again. They were carried farther northeast. On this heading, they were going to miss Underhill by several hundred kilometers. After that, nothing; no settlements at all, no refuge. They would be blown over Acidalia, up onto Vastis Borealis, up to the empty petrified sea of black dunes. And they did not have enough food and water to circumnavigate the planet again and give it another try.

Arkady. "Look," she said, "if we could pick up the signals from the transponders on our road to Chasma Borealis, we could come down and land by it. Then one of the robot rovers could be sent up to get us. The storm won't matter to the robot rovers, they don't go by sight anyway. We could leave the Arrowhead tethered, and drive back home."

Arkady looked at her, finished swallowing. "Good idea," he said.

###

But only if they could actually pick up the road's transponder signals. Arkady flicked on the radio and called Underhill. The connection crackled in a storm of static almost as dense as the dust, but they could still make themselves understood. All through that night they conferred with the crowd back home, discussing frequencies, bandwidths, the power of the dust to mask the transponder's fairly weak signals, and so on. Because the transponders were designed only to signal rovers that were nearby and on the ground, it was going to be a problem hearing them. Underhill might be able to pinpoint their location well enough to tell them when to descend, and their own radar map would give them a general fix on the road's location as well; but neither of these methods would be very exact, and it would be almost impossible to find the road in the storm if they didn't land right on it. Ten kilometers either way and it would be over the horizon, and they would be out of luck. It would be a lot more certain if they could just latch onto one of the transponder signals, and follow it down.

In any case, Underhill dispatched a robot rover on the road north. It would arrive in the area of the road they were expected to cross in about five days; at their current speed, now nearly thirty kilometers per hour, they would cross the road themselves in about four days.

When the arrangements were finished, they traded watches through the rest of the night. Nadia slept uneasily on her off watches, and spent much of the time lying on the bed feeling the wind bounce her. The windows were as dark as if curtains had been drawn. The roar of the wind was like a gas stove, and then occasionally like banshees; once she dreamed they were inside a great furnace full of flame demons, and woke sweating, and went forward to relieve Arkady. The whole gondola smelled of sweat and

Friedrichshafen would have shuddered. But Germans always overengineered things, and no one on Earth could ever really believe in martian gee anyway. So she sawed and hammered until everything inside the gondola was latticed nearly to nothing. Every use of the bay brought in another small cloud of dust, but she figured it was worth it; they needed the loft, her windmill arrangement was not getting sufficient power to the batteries, and she had tossed the rest of them overboard long before. Even if she had had them, she would not have gone back under the dirigible to install them; the memory of the incident still gave her the shivers. Instead she kept cutting further and further; she would have tossed out pieces of the dirigible frame too, if she could have gotten into the ballonets.

While she did this Arkady padded around the gondola cheering her on, naked and dust-caked, the red man incarnate, singing songs and watching the radar screen, jamming down quick meals, planning their course such as it was. It was impossible not to catch a bit of his exhilaration, to marvel with him at the strongest buffets of the wind, to feel the dust flying wild in her blood.

And so three long intense days passed, in the wild grip of the dark orange wind. And on the fourth day, a bit after noon, they turned the radio receiver up to full volume, and listened to the crackly roar of static at the transponders' frequency. Concentrating on the white noise made Nadia drowsy, for they had had very little sleep; and she was almost unconscious when Arkady said something, and she jerked up in her seat.

"Hear it?" he asked again. She listened, and shook her head. "There, it's a kind of ping."

She heard a little bip. "Is that it?"

"I think so. I'm going to get us down as fast as I can, I'll have to empty some of the ballonets."

He tapped away at the control keyboard, and the dirigible tilted forward and they began to drop at emergency speed. The altimeter's numbers flickered down. The radar screen showed the ground below to be basically flat. The ping got louder and louder; without a directional receiver, that was

perhaps getting sicker at a slower rate.

When the altimeter indicated they were low enough to drop the anchor they did so, and after an anxious bit of drifting it caught, and held. They dropped all the anchors they had, and pulled the Arrowhead down on the lines. Then Nadia suited up and climbed into the sling and winched down, and once on the surface she began walking around in a chocolate dawn, leaning hard into the irregular torrent of wind. She found she was more physically exhausted than she could ever remember being, it was really hard to make headway upwind, she had to tack. Over her intercom the transponder signal pinged, and the ground seemed to bounce under her feet; it was hard to keep her balance. The ping was quite distinct. "We should have been listening on our helmet intercoms all along," she said to Arkady. "You can hear better."

A gust knocked her over. She got up and shuffled slowly along, letting out a nylon line behind her, adjusting her course as she followed the volume of the pings. The ground flowed underfoot, when she could see it; visibility was actually down to a meter or less, at least in the thickest gusts. Then it would clear a touch and brown jets of dust would flash by, sheet after sheet, moving at an awesome speed. The wind buffeted her as hard as anything she had ever felt on Earth, or harder; it was painful work to keep her balance, a constant physical effort.

While inside a thick, blinding cloud, she nearly shuffled right into one of the transponders, standing there like a fat fencepost. "Hey!" she shouted.

"What's wrong?"

"Nothing! I scared myself running into the roadmark."

"You found it!"

"Yeah." She felt her exhaustion run down into her hands and feet. She sat on the ground for a minute, then stood again; it was too cold to sit. Her ghost finger hurt.

She took up the nylon line, and returned blindly to the dirigible, feeling she had wandered into the ancient myth, and was following the only thread out of the labyrinth.

###

bastards! They're going to get away with it.

Part Four

Homesick

-+=*=-

One winter morning the sun shines down on Valles Marineris, illuminating the north walls of all the canyons in that great concatenation of canyons. And in that bright light, all day every day, one can see that every ledge and outcropping is black with a warty surface of lichen.

Life adapts, you see. It has only a few needs, some fuel, some energy; and it is fantastically ingenious at extracting these needs from a wide range of environments. Some organisms live always below the freezing point of water, others above the boiling point; some live in high radiation zones, others in intensely salty regions, or within solid rock, or in pitch black, or in extreme dehydration, or without oxygen. All kind of environments are accomodated, by adaptive measures so strange and marvelous they are beyond our capacity to imagine; and so from the bedrock to high in the atmosphere, life has permeated the Earth with the full weave of one great biosphere.

All these adaptive abilities are coded and passed along in genes. If the genes mutate, the organisms change. If the genes are altered, the organisms change. Bioengineers use both these forms of change, not only recombinant gene splicing, but also the much older art of selective breeding. Micro-organisms are plated, and the fastest growers (or those that exhibit most the trait you want) can be culled and plated again; mutagens can be added to increase the mutation rate; and in the quick succession of microbial generations (say ten per day), you can repeat this process until you get something like what you want. Selective breeding is one of the most powerful bioengineering techniques we have.

carried the desired characteristic, and then synthesize these DNA messages and cut and paste them into plasmid rings; after that cells were washed and suspended in a glycerol with the new plasmids, and the glycerol was suspended between two electrodes and given a short sharp shock of about two thousand volts, and the plasmids in the glycerol shot into the cells, and voilà! There, zapped to life like Frankenstein's monster, was a new organism. With new abilities.

And so: fast-growing lichens. Radiation-resistant algae. Extreme-cold fungi. Halophylic bacteria, eating salt and excreting oxygen. Surarctic mosses. An entire taxonomy of new kinds of life, all partially adapted to the surface of Mars, all out there having a try at it. Some species went extinct: natural selection. Some prospered: survival of the fittest. Some prospered wildly, at the expense of other organisms; and then chemicals in their excretions activated their suicide genes, and they died back until the levels of those chemicals dropped again.

So life adapts to conditions. And at the same time, conditions are changed by life. That is one of the definitions of life: organism and environment change together in a reciprocal arrangement, as they are two manifestations of an ecology, two parts of a whole.

And so: black fuzz on the polar ice. Black fuzz on the ragged surfaces of bubbled rock. Pale green patches on the ground. Bigger grains of frost in the air. Animacules shoving through the depths of the regolith, like trillions of tiny moles.

At first it was nearly invisible, and very slow. With a cold snap or a solar storm there would be massive die-offs, whole species extinct in a night. But the remains of the dead fed other creatures; conditions were thus easier for them, and the process picked up momentum. Bacteria reproduce quickly, doubling their mass many times a day if conditions are right; the mathematical possibilities for the speed of their growth are staggering, and although environmental constraints-especially on Mars-keep all actual growth far from the mathematical limits, still, the new organisms, the areophytes, quickly reproduced, sometimes mutated, always died, and the new life fed on the compost of their ancestors, and

Michel Duval dreamed of home. He was swimming in the sun on the point at Villefranche-Sur-Mer, the warm August water lifting him up and down. It was windy and near sunset and the water was a sloppy white bronze, the sunlight bouncing all over it. The waves were big for the Mediterranean, swift breakers that rose up all riven with wind chop to crash in quick uneven lines, allowing him to ride them for a moment. Then it was under in a tumble of bubbles and sand, and back up into a burst of gold light and the taste of salt in everything, his eyes stinging voluptuously. Big black pelicans rode air cushions just over the swells, soared into steep clumsy turns, stalled, dropped into the water around him. They half-folded their wings when they dove, making adjustments with them until the actual moment of the awkward crash into the water. Often they came up gulping small fish. Just meters from him one splashed in, silhouetted against the sun like a Stuka or a pterodactyl. Cool and warm, immersed in salt, he bobbed on the swell and blinked, blinded by salt light. A breaking wave looked like diamonds smashed to cream.

His phone rang.

His phone rang. It was Ursula and Phyllis, on to tell him that Maya was having another fit and was inconsolable. He got up, put on unders and went to the bathroom. Waves leaped over a line of backwash. Maya, depressed again. Last time he had seen her she had been in high spirits, almost euphoric, and that was what, a week ago? But that was Maya. Maya was crazy. Crazy in a Russian way, however, which meant she was a power to be reckoned with. Mother Russia! The church and the communists both had tried to eradicate the matriarchy that had preceded them; and all they had achieved was a flood of bitter emasculating scorn, a whole nation full of contemptuous russalkas and baba yagas and twenty-hour-a-day superwomen, living in a nearly parthenogenic culture of mothers, daughters, babushkas, granddaughters. Yet still necessarily absorbed in their relationships with men, desperately trying to find the lost father, the perfect mate. Or just a man who would pull his share of the load. Finding that great love, and then more often than not destroying it. Crazy!

All strangely mimicked by this desperate creature, who leaned forward onto his desk and began to tell him in a ragged hoarse voice about the latest scene in the unfolding drama of her and John, and then, again, Frank. Apparently she had gotten angry at John for refusing to help her in a plan she had to get some of the Russian-based multinationals to underwrite the development of settlements in Hellas Basin, which being the deepest point on Mars was going to be first to benefit from the atmospheric changes they were beginning to see. The air pressure at Low Point, four kilometers below the datum, was always going to be ten times thicker than that on top of the great volcanoes, and three times thicker than at the datum; it was going to be the first human-viable place, it was perfect for development.

But apparently John preferred to work through UNOMA and governments. And this was just one of the many basic political disagreements which were beginning to infect their personal life, to the point that they were fighting pretty frequently about other things, things that didn't matter, things about which they had never fought before.

Watching her Michel almost said, John wants you irritated with him. He wasn't sure what John would say to that. Maya rubbed her eyes, leaned her forehead on his desk, revealing the back of her neck and her broad rangy shoulders. She would never look this distraught in front of most of Underhill; it was an intimacy between them, something she only did with him. It was as if she had taken off her clothes. People didn't understand that true intimacy did not consist of sexual intercourse, which could be done with strangers and in a state of total alienation; intimacy consisted of talking for hours about what was most important in one's life. Although it was true she would be beautiful naked, she had perfect proportions. He recalled the way she looked swimming in the pool, doing the backstroke in a blue bathing suit cut high over the hipbones. A Mediterranean image: he was floating in the water at Villefranche, everything flooded with sunset's amber light, and he was looking in at the beach where men and women were walking, naked except for the neon triangles of cache-sexe bathing suits-brown-skinned bare-breasted women, walking in pairs like dancers in

yet I love him, I really do. But . . .

She talked for a while about their past, how their courtship had saved the voyage out from anarchy (or at least ennui), how John's easy-going stability had been so good for her. How you could count on him. How impressed she had been by his fame, how she had felt that the liason made her part of world history forever. But now she understood that she herself was going to be part of world history anyway; all of them in the first hundred were. Her voice rose, became faster and more vehement: "I don't need John for that now, I only need him for how I feel about him, but now we don't agree on anything and we're not very much alike, and Frank who has been so careful to hold back no matter what, we agree about almost everything and I've been so enthusiastic about that part that I've given him the wrong signal again, so he did it again, yesterday in the pool he-he held me, you know, took my arms in his hands-" she crossed her arms and clasped her biceps in her hands- "and asked me to leave John for him, which I would never do, and he was shaking, and I said I couldn't but I was shaking too." So later she had been on edge, and had started a fight with John, started it so flagrantly that he had gotten truly angry and had left and taken a rover out to Nadia's arcade, and spent the night there with the construction team; and Frank had come to talk to her again, and when she had (just barely) put him off, Frank had declared he was going to live with the European settlement on the other side of the planet; he who was the colony's driving force! "And he'll really do it, he's not one to threaten. He's been learning German the way he does, languages are nothing to Frank."

Michel tried to concentrate on what she was saying. It was difficult, because he knew full well that in a week everything would be different, all the dynamics in that little trio altered beyond recognition. So it was hard to care. What about his troubles? They went much, much deeper; but no one ever listened to him. He walked back and forth in front of the window, reassuring her with the usual questions and comments. The greenery in the atrium was refreshing; it could have been a courtyard in Arles or Villefranche; or suddenly it reminded him of Avignon's narrow cypress-arched plaza near the Pope's palace, the plaza and its café tables which in

think they'll ever find a use for all this salt?" He said.

"Sax is still working on it."

From time to time Maya went on talking about John and Frank. Michel asked the questions that a shrink program would have asked, Maya answered in the way a Maya program would have answered. Their voices right in each other's ears, the intimacy of the intercom.

They came to the lichen farm, and Michel stopped to gaze over the trays, to soak in their intense living color. Black snow algae, and then thick mats of otoo lichen, in which the algae symbiote was a blue-green strain that Vlad had just gotten to grow alone; red lichen, which seemed not to be doing well. Superfluous in any case. Yellow lichen, olive lichen, a lichen that looked exactly like battleship paint. Flakey white and lime green lichen-living green! It pulsed in the eye, a rich and improbable desert flower. He had heard Hiroko, looking down at such a growth, say "This is viriditas," which was Latin for "greening power." The word had been coined by a Christian mystic of the middle ages, a woman named Hildegard. Viriditas, now adapting to conditions here, and spreading slowly over the lowlands of the northern hemisphere. In the southern summers it did even better; one day had reached 285 degrees Kelvin, a record high by twelve degrees. The world was changing, Maya remarked as they walked by the flats. "Yes," Michel said, and could not help adding, "Only three hundred years before we reach livable temperatures."

Maya laughed. She was feeling better. Soon she would be back on level, or at least crossing through that zone on the way to euphoria. Maya was labile. Stability-lability was the most recent characteristic Michel had been studying in the first hundred; Maya represented the labile extreme.

"Let's drive out and see the arcade," she said. Michel agreed, wondering what might happen if they ran into John. They went to the parking lot and checked out a roadrunner. Michel drove the little jeep and listened to Maya talk. Did conversation change when voices were divorced from bodies, planted right in the ears of the listeners by helmet mikes? It was as if one were always on the phone, even when sitting next to the

still under construction and looked raw and messy, like Underhill in the beginning but on a larger scale. A long mound of burgundy rubble had been excavated from the trench, which ran east and west like Big Man's grave.

They stood at one end of the great trench. Thirty meters deep, thirty wide, a kilometer long. The south side of the trench was now a wall of glass; the north side of the trench was covered with arrays of filtering mirrors, alternating with wall-mesocosms, marsjars or terrariums, all of them together a colorful mix, like a tapestry of past and future. Most of the terrariums were filled with spruce trees and other flora that made it resemble the great world-wrapping terran forest of the sixtieth latitude. Like Nadia Cherneshevsky's old home in Siberia, in other words. Was this perhaps a sign that she had a touch of his disease? And could he prevail on her to build a Mediterranean?

Nadia was up working on a bulldozer. A woman with her own kind of viriditas. She stopped and came over to talk briefly with them. The project was coming along, she told them calmly. Amazing what one could do with the robot vehicles that were still being sent up from Earth. The concourse was done, and planted with a variety of trees, including a strain of dwarf sequoia already thirty meters tall, nearly as tall as the whole arcade. The three stacked rows of Underhill-style vaulted chambers behind the concourse were installed, their insulation in place. The settlement had just the other day been sealed and heated and pressurized, so that it was possible to work inside it without suits. The three floors were stacked on each other in ever smaller arches, reminding Michel of the Pont du Gard; of course all the architecture here was Roman in origin, so that should not be a surprise. The arches were wider, however, and slighter. Airier in the tolerance of the gee.

Nadia went back to work. Such a calm person. Stabile, the very opposite of labile. Low-keyed, private, inward. Couldn't be less like her old friend Maya; it was good for Maya to be around her. Opposite end of the scale, keep her from flying away. Set an example for her. As in this encounter, where Maya was matching Nadia's calm tone. And when Nadia

Yes. But that will give us space of a different kind.

She looked thoughtful. "Like John and Frank leaving."

"Yes. But even that isn't necessarily a bad thing." In a larger society, he told her, the claustrophobic village atmosphere of Underhill would begin to dissipate; this would give a better perspective on certain aspects of things. Michel hesitated before continuing, unsure how to say it. Subtlety was dangerous when you were both using a second language, coming at it from different native tongues; possibilities for misunderstanding were all too real. "You must accept the idea that you perhaps do not want to choose between John and Frank. That in fact you want them both. In the context of the first hundred that can only be scandalous. But in a larger world, over time. . . ."

"Hiroko keeps ten men!" she exclaimed angrily.

"Yes, and so do you. So do you. And in a larger world, no one will know or care."

He went on reassuring her, telling her that she was powerful, that (using Frank's terms) she was the alpha female of the troop. She disagreed and forced more praise from him until finally she was satiated, and he could suggest they return home.

"Don't you think it will be a shock to have new people around? Different people?" She was driving, and as she turned to ask him this she almost drove off the road.

"I suppose." Parties had already landed in Borealis and Acidalia, and the videotapes of them had been a shock, you could see it in people's faces. As if aliens had arrived from space. But so far only Ann and Simon had met with any of them in person, running into a rover expedition north of Noctis Labyrinthus. "Ann said it felt as if someone had stepped out of the TV."

"My life feels like that all the time," Maya said sadly.

Michel lifted his eyebrows. The Maya program would not have said that. "What do you mean?"

"Oh, you know. Half the time it seems like one big simulation, don't you think?"

himself, I am a diamondback snake, slithering through a red desert of cold stone and dry dust. Someday I will shed my skin like a phoenix in a fire, to become some new creature of the sun, to walk the beach naked and splash in warm salt water. . . .

Back at Underhill he turned on the shrink program in his head and asked Maya if she were feeling better, and she touched her faceplate to his, giving him a brief glimpse of a gaze that was a kiss. "You know I do," her voice said in his ear. He nodded. "I think I'll go for another walk, then," he said, and did not say But what about me? What will make me feel better? He willed the movement of his legs and walked off. The bleak plain surrounding the base was a vision out of some post-holocaust desolation, a nightmare world; nevertheless he didn't want to go back into their little warren of artificial light and heated air and carefully deployed colors, colors that he himself had chosen for the most part, utilizing the very latest in color-mood theory, a theory which he now understood to be based on certain root assumptions that did not in fact apply here; the colors were all wrong, or worse, irrelevant. Wallpaper in hell.

The phrase formed in his mind and pushed at his lips. Wallpaper in hell. Wallpaper in hell. Since they're going to go crazy anyway. . . . Certainly it had been a mistake to have only one psychiatrist along. Every therapist on Earth was also in therapy, it was part of the job, it came with the territory. But his therapist was back in Nice, fifteen timeslipped minutes away at best, and Michel talked to him but he couldn't help. He didn't understand, not really; he lived where it was warm and blue, he could go outside, he was (Michel presumed) in reasonably good mental health. While Michel was a doctor in a hospice in a prison in hell; and the doctor was sick.

He hadn't been able to adapt. People were different in that regard, it was a matter of temperament. Maya, walking toward the lock door, had a temperament quite different from his, which somehow enabled her to be completely at home here. To tell the truth he didn't think she really noticed her surroundings much in any case. And yet in other ways he and she were similar. It had to do with the lability-stability index, and its particular emotionality; they were both labile. And yet fundamentally they were very

rating them for such qualities as sociability, impulsiveness, changeability, talkativeness, outgoingness, activity, liveliness, excitability, optimism, and so on. These measurements had been done so many times that it was statistically certain that the various traits did indeed hang together, to a degree that exceeded chance by a huge amount. So the concept was real, quite real! In fact physiological investigations had revealed that extraversion was linked with resting states of low cortical arousal, introversion with high cortical arousal; this had sounded backwards to Michel at first, but then he remembered that the cortex inhibits the lower centers of the brain, so that low cortical arousal allows the more uninhibited behavior of the extravert, while high cortical arousal is inhibitory and leads to introversion. This explained why drinking alcohol, a depressant which lowers cortical arousal, could lead to more excited and uninhibited behavior.

So the whole collection of extravert-introvert traits, with all that they said about one's character, could be traced back to a group of cells in the brain stem called the ascending reticular activating system, the area that ultimately determined levels of cortical arousal. Thus they were driven by biology. There should be no such thing as fate: Ralph Waldo Emerson, a year after his six year-old son died. But biology was fate.

And there was more to Michel's system; fate, after all, was no simple either-or. He had recently begun to consider Wenger's index of autonomic balance, which used seven different variables to determine whether an individual was dominated by the sympathetic or the parasympathetic branches of the autonomic nervous system. The sympathetic branch responds to outside stimuli and alerts the organism to action, so that individuals dominated by this branch were excitable; the parasympathetic branch, on the other hand, habituates the alerted organism to the stimulus, and restores it to homeostatic balance, so that individuals dominated by this branch were placid. Duffy had suggested calling these two classes of individuals labiles and stables, and this classification, while not as famous as extraversion and introversion, was just as solidly backed by empirical evidence, and just as useful in understanding varieties of temperament.

terms around the initial points of a Greimas' semantic rectangle, a structuralist schema with alchemical ancestry, which proposed that no simple dialectic was enough to indicate the true complexity of any cluster of related concepts, so that it was necessary to acknowledge the real difference between something's opposite and its contrary; the concept "not-X" being not quite the same thing as "anti-X," as one saw immediately. So the first stage was usually indicated by using the four terms S, -S, S, and -S, in a simple rectangle:

insert Diagram 4a

Thus -S was a simple not-S, and S was the stronger anti-S; while -S was the for Michel skullcracking negation of a negation, either a neutralizing of the initial opposition, or the union of the two negations; in practice this often remained a mystery or koan, but sometimes it came clear, as an idea that completed the conceptual unit quite nicely, as in one of Greimas's example:

insert Diagram 4b

The next step in the complication of the design, the step where new combinations often revealed structural relationships not at all obvious on the face of it, was to build another rectangle that bracketed the first at right angles, like so:

insert Diagram 4c

And Michel had stared at this schema, with extraversion, introversion, lability and stability at the first four corners, and considered their combinations; and then everything had suddenly fallen into focus, as if a kaleidoscope had suddenly clicked by accident into a depiction of a rose. For it made perfect sense: there were extraverts who were excitable, and extraverts who were on an even keel; there were introverts who were quite

the east, introverted and stable was phlegmatic, and in the south, introverted and labile was of course the very definition of the melancholic! Yes, they all fit perfectly! Galen's physiological explanation for the four temperaments had been wrong, of course, and bile, choler, blood and phlegm had now been replaced as causative agents by the ascending reticular activating system and the autonomic nervous system; but the truths of human nature had held fast! And the powers of psychological insight and analytic logic of the first Greek physicians had been as strong, or rather stronger by far, than that of any subsequent generation's, blinkered by an often-useless accumulation of knowledge; and so the categories had endured and were reaffirmed, in age after age.

insert Diagram 4d

Michel found himself in the Alchemist's Quarter. He exerted himself to pay attention to it. Here men used arcane knowledge to make diamonds out of carbon, and they made it so easily and precisely that all their window glass was coated in a molecular layer of diamond to protect it from the corrosive dust; and their great white salt pyramids (one of the great shapes of ancient knowledge, the pyramid) were coated in layers of pure diamond. And the one-molecule diamond-coating process was just one of thousands of alchemical operations performed in these squat buildings.

In recent years the buildings had taken on a faintly Moslem look, their white brick walls displaying equation after equation, all rendered in black flowing mosaic calligraphy. Michel ran into Sax, who was standing next to the terminal velocity equation displayed on the wall of the brick factory, and he switched to the common band: "Can you turn lead into gold?"

Sax's helmet tilted quizzically. "Maybe," he said. "A little of it, anyway. But it would be hard. Let me think about it some."

Saxifrage Russell. The perfect Phlegmatic.

the point of placidity. So that most of the time he gave her great peace, like an anchor to reality-which then occasionally rankled. And John's attraction to Maya? The attraction of the unpredictable, perhaps; the spice in his hearty bland happiness. Sure, why not? You can't make love to your fame. Even though some people try.

Yes, there were a lot of sanguines in the first hundred. Probably the psychological specs for selection to the colony preferred the type. Arkady, Ursula, Phyllis, Spencer, Yeli... Yes. And stability being the most preferred quality for selection, there were naturally a lot of phlegmatics among them as well: Nadia, Sax, Simon Frazier, perhaps Hiroko-the fact that one could not even be sure about her tended to support the guess-Vlad, George, Alex.

Phlegmatics and melancholics would naturally not get along, both being introverted and quick to withdraw, and the stabile one put off by the unpredictability of the labile; so that they would withdraw from each other, like Sax and Ann. There were not many melancholics among them. Ann, yes; and probably by the fate of her brain's structure, although it did not help that she had been molested as a child. She had fallen in love with Mars for the same reason that Michel hated it: because it was dead. And Ann was in love with death.

A few of the alchemists were melancholics as well. And, unfortunately, Michel himself. Perhaps five all told. Along both axes they had been selected against, as neither introversion nor lability had been considered desirable by the selection committee. Only people quite clever at concealing their real nature from the committee could have slipped through, people with great control over their personas, those larger-than-life masks that conceal all the wild inconsistencies within. Perhaps only a certain kind of persona had been selected to the colony, with a wide variety of persons behind it. Was that true? The selection committees had made impossible demands, it was important to remember that. They had wanted stables and yet they had wanted people who cared about going to Mars so passionately and monomaniacally that they would devote years of their lives to achieving the goal. Was that consistent? They wanted extraverts

think fast enough to confess that he too had lied, of course he had, more than any of the rest of them!

But why had he lied, why?

This was what he could not quite recall. Melancholia as a failure of memory, an acute sensation of the irreality of the past, its non-existence. . . . He was a melancholic: withdrawn, out of control of his feelings, inclined to depression. He shouldn't have been chosen to go; and now he could not remember why he had fought so passionately to be chosen. The memory had gone away, overwhelmed perhaps by the poignant, aching, fragmented images of the life he had lived in the interstices of his desire to go to Mars. So miniscule and so precious; the evenings in the plazas, the summer days on the beaches, the nights in women's beds. The olive trees of Avignon. The green flame cypress.

He found he had left the Alchemist's Quarter. He was at the foot of the Great Salt Pyramid. He stepped slowly up the four hundred stairs, putting his feet carefully on the blue no-slip pads. Each step gave him a wider view of Underhill Plain, but it was still the same sere and barren rockpile, no matter how large it got. From the square white pavilion at the pyramid's summit one could just see Chernobyl, and the spaceport. Other than that, nothing. Why had he come to this place? Why had he worked so hard to get here, sacrificing so many of the pleasures of life, family, home, leisure, play. . . . He shook his head. So far as he could recall, it had simply been what he had wanted to do, the definition of his life. A compulsion, a life with a goal, how could you tell the difference? Moonlit nights in the fragrant olive grove, the ground dotted with small black circles and the electric warm brush of the mistral rustling the leaves in quick soft waves, flat on his back, arms spread wide, the leaves flickering silver and grey under the black bowl of stars; and one of those stars would be steady, faint, red, and he would seek it out and watch it, there among the windswept olive leaves; and he had been eight years old! My God, what were they? Nothing explained that, nothing explained them! As well explain why they had painted in Lascaux, why they had built stone cathedrals into the sky. Why coral polyps built reefs.

Only three who could even try, and Frank's French was worse than no French at all, like listening to someone attack the language with a hatchet.

The absence of his mind's own tongue had driven him to watching TV from home, which only exacerbated his pain. Still he taped video monologues, and sent them to his mother and sister, so that they would send replies in kind; he watched the replies many times, looking more at the backdrops than at his relatives. He even had occasional live conversations with journalists, waiting impatiently between exchanges. Those talks made it clear how famous he was in France, a household name, and he was careful to answer everything conventionally, playing the Michel Duval persona, running the Michel program. Sometimes he cancelled consultations with fellow colonists when he was in the mood to listen to French; let them eat English! But these incidents got him a sharp reprimand from Frank, and a conference with Maya. Was he overworked? Of course not; only ninety-nine people to keep sane, while at the same time wandering in a Provence of the mind, on tree-covered steep hillsides with their vineyards and farmhouses and ruined towers and monasteries, in a living landscape, a landscape infinitely more beautiful and humane than the stony waste of this reality-

He was in the TV lounge. While lost in thought he had apparently gone back inside. But he could not remember that; he had thought he was still standing on top of the Great Pyramid; and then he had blinked and was in the TV lounge (all asylums have them), watching a video image of one of the lichen-covered canyon walls of Marineris.

He shivered. It had happened again. He had lost touch, gone away and come to later in the day. It had happened already some dozen times before. And it was not just being lost in thought, but buried in it, dead to the world. He looked around the room, shivered convulsively. It was Ls = 5 now, the beginning of northern spring, and the northern walls of the great canyons were basking in the sun. Since they're all going to go crazy anyway. . . .

Then it was Ls = 157, and 152 degrees had passed in a blur of tele-existence. He was basking in the sun in the courtyard of Françoise's

with her, like rain on a duck. In time Nadia would be well. Meanwhile there was nothing to be done. Did they think he was a sorcerer? A priest? If that were true he would have healed himself, healed all this world, or better, flown through space home. Wouldn't that cause a sensation, to appear on the beach at Antibes and say, "Bonjour, I am Michel, I have come home?"

Then it was Ls = 190, and he was a lizard on the top of the Pont du Gard, on the narrow rectangular rock plates that covered the actual aqueduct itself, which ran in its straight line high over the gorge. His diamondback skin had sluffed off around his tail, and the hot sun burned the new skin in crisscross lines. Except he was Underhill, in fact, in the atrium, and Frank had gone off to live with the Japanese that had landed in Argyre, and Maya and John were at loggerheads about their rooms, and where to house the UNOMA local headquarters; and Maya, more beautiful than ever, stalked him through the atrium, imploring his aid. He and Marina Tokareva had stopped rooming together nearly a full martian year before-she had said he was not there-and looking at Maya Michel found himself imagining her as a lover but of course this was crazy, she was a russalka, she had slept with Glavkosmos bosses and cosmonauts to make her way up through the system and it had made her dissociated and bitter and unpredictable, she used sex to hurt now, sex was just diplomacy by other means to her, it would be insane to have anything to do with her in that mode, to be drawn down into the vortex of her limbs and her limbic system. Why not send crazy people in the first place. . . .

But now it was Ls =241. He walked over the honeycombed limestone parapet of Les Baux, looking in the ruined chambers of the medieval hermitage. It was near sunset and the light was a curious martian orange, the limestone glowing, the whole village and hazy plain below stretching out to the whitebronze line of the Mediterranean, looking as implausible as a dream. -Except it was a dream, and he woke up, and found himself awake and back in Underhill. Phyllis and Edvard had just returned from an expedition and Phyllis was laughing and showing them a buttery lump of

time passed. The Michel program walked around, a hollow persona, empty inside, only some tiny homunculus of the cerebellum left to teleoperate the thing.

The night of the second day of Ls = 266, he went to bed. He was dog-tired though he had done nothing, totally exhausted and drained, and yet he lay in the dark of his room and could not sleep. His mind spun miserably; he was very aware of how sick he was. He wished he could quit the pretense and admit that he had lost it, institutionalize himself. Go home. He could remember almost nothing of the previous few weeks; or maybe it was longer than that? He was not sure. He began to weep.

His door clicked. It swung open, and a narrow wedge of hall light shone in, unblocked. No one there.

"Hello?" he said, working to keep the tears out of his voice. "Who is it?"

The reply was right in his ear, as if from a helmet intercom: "Come with me," a man's voice said.

Michel jerked back and bumped into the wall. He stared up at a black silhouetted figure.

"We need your help," the figure whispered. A hand gripped his arm as he pressed back into the wall. "And you need ours." A suggestion of a smile in the voice, which Michel did not recognize.

Fear thrust him into a new world. Suddenly he could see much better, as if the touch of his visitor had sprung his pupils open like camera apertures. A thin dark-skinned man. A stranger. Astonishment launched through his fear, and he got up and moved through the dark light with dreamlike precision, stepping into slippers, and then at the stranger's urging following him out into the hallway, feeling the lightness of martian gee for the first time in years. The hallway seemed bursting with gray light, though he could tell that only the night strips in the floor were on. It was enough to see well by if you were scared. His companion had short black dreadlocks, which made his head appear spiked. He was short, thin, narrow-faced. A stranger, no doubt about it. An intruder from one of the new colonies in the southern hemisphere, Michel thought. But the man was leading him through Underhill with an expert touch, moving in utter

Not tonight. The man opened the lock door, and no air rushed into it even though it was open on the other side. They went in and walked between the black rows of packed foliage, and the air was sweet. Hiroko will be angry, Michel thought.

His guide was gone. Ahead Michel saw movement, and heard a tinkly little laugh. It sounded like a child. Suddenly it occurred to Michel that the absence of children accounted for the colony's pervasive feeling of sterility, that they could build buildings and grow plants and yet without children this sterile feeling would still permeate every part of their lives. Extremely frightened, he continued to walk toward the center of the farm. It was warm and humid, and the air stank of wet dirt and fertilizer and foliage. Light glinted from thousands of leaf surfaces, as if the stars had fallen through the clear roof and clustered around him. Rows of corn rustled, and the air was going to his head like brandy. Little feet were scurrying behind the narrow rice paddies: even in the darkness the rice was an intense blackish green, and there among the paddies were small faces, grinning knee-high and disappearing when he turned to face them. Hot blood flooded his face and hands, his blood turned to fire and he retreated three steps, then stopped and spun. Two naked little girls were walking down the lane toward him, black-haired, dark-skinned, about three years old. Their oriental eyes were bright in the gloom, their expressions solemn. They took him by the hands and turned him around; he allowed them to lead him down the lane, looking down at first one head and then the other. Someone had decided to take action against their sterility. As they walked along other naked toddlers appeared out of the shrubbery and crowded around them, boys and girls both, some a bit darker or lighter than the first two, most the same color, all the same age. Nine or ten of them escorted Michel to the center of the farm, weaving around him in a quick trot; and there at the center of the maze was a small clearing, currently occupied by about a dozen adults, all naked, seated in a rough circle. The children ran to the adults, gave them hugs and sat at their knees. Michel's pupils opened further in the nimbus of starlight and leaf gleam, and he recognized

two outstretched fists a little bit of dirt into each person's offered hands. Michel held up his palms with Ellen and Evgenia as she approached, he stared at her lustrous skin. Once on the night beach at Villefranche he had walked by a gang of African women splashing in the phosphorescent waves, white water on black gleaming skin-

The dirt in his hand was warm and smelled rusty. "This is our body," Hiroko said. She walked to the other side of the circle, gave the children each a fistful of dirt and sent them back to sit among the adults. She sat across from Michel and began to chant in Japanese. Evgenia leaned over and whispered a translation or rather an explanation in his ear. They were celebrating the areophany, a ceremony they had created together under Hiroko's guidance and inspiration. It was a kind of landscape religion, a consciousness of Mars as a physical space suffused with kami, which was the spiritual energy or power that rested in the land itself. Kami was manifested most obviously in certain extraordinary objects in the landscape, stone pillars, isolated ejecta, sheer cliffs, oddly smoothed crater interiors, the broad circular peaks of the great volcanoes. These intensified expressions of Mars's kami had a terran analogue within the colonists themselves, the power that Hiroko called viriditas, that greening fructiparous power within, which knows that the wild world itself is holy. Kami, viriditas; it was the combination of these sacred powers that would allow humans to exist here in a meaningful way.

When Michel heard Evgenia whisper the word combination, all the terms immediately fell into a semantic rectangle: kami and viriditas, Mars and Earth, hatred and love, absence and yearning. And then the kaleidoscope clicked home and all the rectangles folded into place in his mind, all antimonies collapsed to a single, beautiful rose, the heart of the areophany, kami suffused with viriditas, both fully red and fully green at one and the same time. His jaw was slack, his skin was burning, he could not explain it and did not want to. His blood was fire in his veins.

Hiroko stopped chanting, brought her hand to her mouth, began to eat the dirt in her palm. All the others did the same. Michel lifted his hand to his face: a lot of dirt to eat, but he stuck his tongue out and licked up half

pulling him along. Then they were all pressed together around Hiroko, in a mass of close-packed bodies, surrounding Michel so that warm skin squashed up against every side of him. This is our body. A lot of them were kissing, their eyes closed. Slowly they moved, twisting to keep maximum contact as they shifted to new kinetic configurations. Wiry pubic hair tickled his bottom, and he felt what had to have been an erect penis against his hip. The dirt was heavy in his stomach, and he felt light-headed; his blood was fire, his skin felt like a taut balloon, containing a blaze. The stars were packed overhead in astonishing numbers, and each one had its own color, green or red or blue or yellow; they looked like sparks.

He was a phoenix. Hiroko herself pressed against him, and he rose in the center of the fire, ready for rebirth. She held his new body in a full embrace, squeezed him; she was tall, and seemed all muscle. She looked him eye-to-eye. He felt her breasts against his ribs, her pubic bone hard on his thigh. She kissed him, her tongue touching his teeth; he tasted the dirt, then suddenly felt all of her at once; all the rest of his life the involuntary memory of that feeling would be enough to start the pulse of an erection, but at that moment he was too overwhelmed, completely aflame.

Hiroko pulled her head back and looked at him again. His breath was whooshing in his lungs, in and out. In English, in a voice formal but kind, she said, "This is your initiation into the areophany, the celebration of the body of Mars. Welcome to it. We worship this world. We intend to make a place for ourselves here, a place that is beautiful in a new Martian way, a way never seen on Earth. We have built a hidden refuge in the south, and now we are leaving for it.

"We know you, we love you. We know we can use your help. We know you can use our help. We want to build just what you are yearning for, just what you have been missing here. But all in new forms. For we can never go back. We must go forward. We must find our own way. We start tonight. We want you to come with us."

And Michel said, "I'll come."

But two men in lab coats stood at one of the benches, leaning forward to look at a computer screen. The shorter of the two tapped at the keyboard below the screen with a forefinger, and the image on the screen changed. Green corkscrews on a black field, squiggling so that they looked sharply three dimensional, as if the screen were a box. An image from an electron microscope; the field was only a few microns across.

"You see it's a kind of plasmid repair of the gene sequence," the short scientist said. "Breaks in the original strands are identified. Replacement sequences are synthesized, and when these replacement sequences are introduced into the cell, the breaks are seen as attachment sites, and the replacements bind to the originals."

"Do you introduce them by transformation? Electroporation?"

"Transformation. Treated cells are injected along with a competent, and the repair strands make a conjugal transfer."

"In vivo?"

"In vivo."

A low whistle. "So you can repair any little thing? Cell division error?"

"That's right."

The two men stared at the corkscrews on the screen, waving about like the new tips of grapevines in a breeze.

"You've got proof?"

"Did Vlad show you those mice in the next room?"

"Yeah."

"Those mice are fifteen years old."

Another whistle.

They went next door into the mice room, muttering to each other under the hum of machinery. The tall one stared curiously into a cage, where patches of fur breathed under wood chips. When they left again they turned out the lights in both rooms. The flicker of the electron microscope screen illuminated the first lab, giving it a green cast. The scientists went to the window, talking in low voices. They looked out. The sky was purple with the coming day; stars were popping out of existence. Out on the

Such as that bird, flying down the round pink dot of the sky, looking so big. Except it wasn't a bird. "Hey," John said. The shaft director, a round-faced Japanese named Etsu Okakura, looked at him, and through their two faceplates John could see the man's nervous grin. One of his teeth was discolored.

Okakura looked up. "Something falling!" he said quickly, and then: "Run!"

They turned and ran over the shaft floor. Quickly John found that although most of the loose rock had been swept off the starred black basalt, no effort had been made to make the shaft bottom perfectly level. Miniature craters and scarps became increasingly difficult as he gained speed; in this moment of primate flight the instincts formed in childhood reasserted themselves, and he kept pushing off too hard with each step, coming down on uninspected terrain with a jolt and then pushing off wildly again, a crazy run until finally he caught his toe and lost control and fell crashing across the ragged stone, arms flung out to save his faceplate. It was small comfort to see that Okakura had fallen as well. Fortunately the same gravity that had caused their tumbles was giving them more time to escape; the falling object had not yet landed. They got up and ran again, and once again Okakura fell. John glanced back and saw a bright metallic blur hit the rock, and then the sound of the impact was a solid whump, like a blow. Silver bits splashed away, some in their direction; he stopped running, scanned the air for incoming ejecta. No sound at all.

A big hydraulic cylinder flew out of the air and banged end over end to their left, and they both jumped. He hadn't seen it coming.

After that, stillness. They stood nearly a minute, and then Boone stirred. He was sweating; they were in pressurized suits, but at 49° C. the shaft bottom was the hottest place on Mars, and the suit's insulation was built for cold. He made a move to help Okakura to his feet, but stopped himself; presumably the man would rather get up himself than owe giri to Boone for the help. If Boone understood the concept properly. "Let's have a look," he said instead.

meters from the point of impact. Beyond a hundred meters debris was rare; the cylinder that had flown by them must have been fired out under pressure of some kind.

A pile of magnesium, aluminum and steel, all twisted horribly. The magnesium and aluminum had partially melted. "Do you think it fell all the way from the top?" Boone asked.

Okakura didn't respond. Boone glanced at him; the man was studiously avoiding his gaze. Perhaps he was frightened. Boone said, "There must have been a good thirty seconds between the time I caught sight of it and when it hit."

At roughly three meters per second squared, that had been more than enough time for it to reach terminal velocity. So it had hit at about two hundred kilometers per hour. Not so bad, really. On Earth it would have come down in less than half the time, and might have caught them. Hell, if he hadn't have looked up when he had, this one might have caught them. He made a quick calculation. It had probably been about halfway up the shaft when he saw it. But at that point it could have been falling for quite some time.

Boone slowly walked around into the gap between the shaft wall and the pile of scrap. The truck had landed on its right side, and the left side was deformed but recognizable. Okakura climbed several steps up the wreckage, then pointed at a black area behind the left front tire. John followed him up, scraped at the metal with the claw on his right glove's forefinger. The black came away like soot. Ammonium nitrate explosion. The body of the truck was bent in there as if hammered. "A good-sized charge," John observed.

"Yes," Okakura said, and cleared his throat. He was frightened, that was sure. Well, the first man on Mars had almost been killed while in his care; and himself too, of course, but who knew which would scare him more? "Enough to push truck off road."

"Well, like I said, there's been some sabotage reported."

Okakura was frowning through his faceplate. "But who? And why?"

Yes. John climbed gingerly on the wreck. They walked back across the floor of the shaft to the car they had come down in. Okakura was on another band, talking to people up top.

John stopped by the central pit to have a final look around. The sheer size of the shaft was hard to grasp; the muted light and vertical lines reminded him of a cathedral, but all the cathedrals ever built would have sat like dollhouses at the bottom of this great hole. The surreal scale made him blink, and he decided he had tilted his head back too long.

They drove up the road inscribed in the side wall to the first elevator, left the car and got in the cage. Up they went. Seven times they had to get out and walk across the wall road to the bottom of the next elevator. The ambient light grew to something more like ordinary daylight. Across the shaft he could see where the wall was scored by the double spiral of the two roads: thread-marks in an enormous screw hole. The shaft's bottom had disappeared into the murk, he couldn't even make out the truck.

In the last two elevators they ascended through regolith; first the megaregololith, which looked like cracked bedrock, and then the regolith proper, its rock and gravel and ice all hidden behind a concrete retainer, a smooth curved wall that looked like a dam, and was angled so far back that the final elevator was actually a cog rail train. They cranked up the side of this enormous funnel-Big Man's bathtub drain, Okakura had said on the way down-and came finally to the surface, out into the sun.

Boone got out of the cog train and looked back down. The regolith retainer looked like the inner wall of a very smooth crater, with a two-laned road spiraling down it; but the crater had no floor. A mohole. He could see down the shaft a little way, but the wall was in shadow, and only the road spiraling down picked up any light, so that it appeared to be something like a freestanding staircase, descending through empty space to the planet's core.

Three of the giant dump trucks ground slowly up the last stretch of the road, full of black boulders. These days it took them five hours to make the trip from the bottom of the shaft, Okakura said. Very little supervision, like most of the project, in both manufacture and operation. The inhabitants of

tubes, it looked to Boone like a giant ant farm. Overhead the thermal cloud frosted into existence and shot up like steam from a valve, until it was caught by high winds and blown out in a long flattened contrail.

The town's actual living quarters were built into the southeast wall of the canyon. A big rectangular section of the cliff had been replaced by glass; behind it was a tall open concourse, backed by five stories of terraced apartments.

They walked through the concourse and Okakura led him up to the town offices, on the fifth floor. A small crowd of concerned-looking people gathered in their wake, chattering to Okakura and among themselves. They all went through the office and out onto its balcony. John watched closely as Okakura described in Japanese what had happened. A number of his audience looked nervous, and most would not meet John's eye. Had the near accident itself been enough to incur *giri*? It was important to make sure they didn't feel publicly shown up, or anything like it. Shame was strong stuff for the Japanese, and Okakura was beginning to look desperately unhappy, as if he were deciding it had been his fault.

"Look, it could just as easily have been outsiders as someone from here," John said boldly. He made some suggestions for future security. "The rim is a perfect barrier. Set up an alarm system, and a few people at the rim station could keep an eye on both the system and the elevators. A waste of time, but I guess we have to do it."

Diffidently Okakura asked him if he knew anything about who might be responsible for the sabotage. He shrugged. "No idea, sorry. People opposed to the moholes, I guess."

"But the moholes are dug," one of them said.

"I know. I guess it's symbolic." He grinned. "But if a truck falls on someone, it would be a bad symbol."

They nodded seriously. He wished he had Frank's facility for languages, it would help to be able to communicate better with these people. They were hard to read; inscrutable and all that.

They wondered if he wanted to lie down.

man On Mars: the usual ratio. And as afternoon darkened to evening, and the whole town gathered for a banquet in honor of his visit, he settled back and patiently played his part. That meant shifting into a good mood, no easy task that night. If fact he took a break and went back to the bathroom in his room, and swallowed a capsule manufactured by Vlad's medical group in Acheron; it was a drug they had named omegendorph, a synthetic mix of all the endorphins and opiates they had found in the brain's natural chemistry, and a better feel-good drug than Boone would have imagined possible.

He returned to the banquet much more relaxed. In fact filled with a little glow. He had escaped death, after all, and by running like a wild man! Some more endorphins were not inappropriate. He moved easily from table to table, asking questions as he went. This was what pleased people, what gave them the festival feeling that a meeting with John Boone should bring. John liked being able to do that, it was the part of his job that made celebrity tolerable; because when he asked questions, people leaped to answer like salmon in the stream. It was peculiar, really, as if people were seeking to right the imbalance they felt in the situation, in which they knew so much about him while he knew so little about them. So that with the right encouragement, often a single carefully-judged prompt, they would erupt with the most astonishing spills of personal information: witnessing, testifying, confessing.

So he spent the evening learning about life at Senzeni Na ("Means, what have we done?" Quick grin.) And afterwards he was led to his big guest suite, the rooms thick with live bamboo, the bed seemingly hacked out of a stand of it. When he was alone he connected his code box to the phone, and called Sax Russell.

###

Russell was at Vlad's new headquarters, a research complex built into a dramatic fin ridge in the Acheron Fossae north of Olympus Mons. Sax spent all his time there now, studying genetic engineering like an undergrad; he had become convinced that biotechnology was the key to terraforming, and he was determined to educate himself to the point where

assistants tell, to a laughing audience at a party. In a secret experiment gone awry, a hundred lab rats that had been injected with an intelligence booster became geniuses. They revolted and escaped from their cages, and captured their principal investigator, and strapped him down and retro-injected all their minds into his body, using a method they invented on the spot-and that scientist was Saxifrage Russell, white-coated, blinking, twitching, inquisitive, lab-bound. His brain the sum of a hundred hyperintelligent rats, "and named for a flower like lab rats are, it's their little joke, see?"

It explained a lot. John smiled as he finished his report, and Sax cocked his head at him curiously. "Do you think this truck was meant to kill you?"

"I don't know."

"How do the people there seem?"

"Scared."

"Think they're in on it?"

John shrugged. "I doubt it. They're probably just worried about what happens next."

Sax flicked a hand out. "Sabotage like that won't make the slightest dent in the project," he said mildly.

"I know."

"Who's doing this, John?"

"I don't know."

"Could it be Ann, do you think? Has she become another prophet, like Hiroko or Arkady, with followers and a program and the like?"

"You have followers and a program too," John reminded him.

"But I'm not telling my followers to wreck things and try to kill people."

"Some people think you're trying to wreck Mars. And people will certainly die as a result of terraforming, in accidents."

"What are you saying?"

"Just reminding you. Trying to get you to see why someone might do this."

"So you do think it's Ann."

inquiry. There really isn't anyone else who can do it. There's no real police to turn to. Although if things keep happening, UNOMA will provide some."

"Or the transnationals." Boone considered it. The sight of that truck, falling out of the sky. . . . "All right. I'll go talk to Ann, anyway. After that we should get together and talk about security for all the terraforming projects. If we can stop anything more from happening, that will keep UNOMA out."

"Thanks, John."

Boone wandered out onto his suite's balcony. The concourse was filled with Hokkaido pines, the chilled air stiff with resin. Copper figures walked below, among the tree trunks. Boone considered the new situation. For ten years now he had worked for Russell on terraforming, managing the moholes and doing PR and the like, and he enjoyed the work; but he wasn't on the cutting edge of any of the sciences involved, and so he was out of the decision-making loop. He knew that many people thought of him as a figurehead only, a celebrity for consumption back on Earth; a dumb space jock who had gotten lucky once, and was living off that for good. That didn't bother John; there were always knee-high people hacking away, trying to get everyone down to their size. That was okay, especially since in his case they were wrong. His power was considerable, although perhaps only he could see the full extent of it, as it consisted of an endless succession of face-to-face meetings, of the influence he had over what people chose to do. Power wasn't a matter of job titles, after all. Power was a matter of vision, persuasiveness, freedom of movement, fame, influence. The figurehead stands at the front, after all, pointing the way.

Still, despite all that, there was something to be said for this new task. He could feel that already. It would be problematic, difficult, perhaps risky. . . above all, challenging. A new challenge; he liked that. Going back into his suite, getting into bed (John Boone Slept Here!) it occurred to him that now he was going to be not only the first man on Mars, but the first detective. He grinned at the thought, and the last action of the omegandorph set his nerves aglow.

###

At five thousand meters the plume cloud flattened and spread out to the east. John swooped out of his spiral and headed southeast, playing with the glider as he went to get a feel for it. He would have to ride the winds carefully to make it to Argyre.

He aimed into the sun's smeary yellow blaze. Wind keened over the wings. The land below him was a dark rough orange, shading to a very light orange at the horizon. The southern highlands were wildly pocked in every direction, with the raw, primordial, lunar look that saturation cratering always had. John loved flying over it, and he piloted unconsciously, concentrating on the land below. It was precious to sit back and fly, feeling the wind as if under his elbows, watching the land and not thinking a thing. He was sixty-four years old in this year 2047 (or "m-year 10" as he usually thought of it), and he had been the most famous man alive for almost thirty of those years; and nowadays he was happiest when he was alone, and flying.

After an hour had passed, he started thinking about his new task. It was important not to get caught up in fantasies of magnifying glasses and cigar ash, or gumshoe with handgun; there was work he could do even as he flew. He called up Sax, and asked if he could connect his AI into the UNOMA emigration and planetary travel records, without alerting UNOMA to the connection. After some investigation Sax got back to him and said that he could manage that, and so John sent a sequence of questions through, and then continued to fly. An hour and many craters later, Pauline's redlight blinked rapidly, indicating a downloading of raw data. John asked the AI to run the data through various analyses, and when she was done he studied the results on the screen. Patterns of movement; they were confusing, but he hoped that when matched with the sabotage incidents, something might turn up. Of course there were people moving around off the record, the hidden colony among them; and who knew what Hiroko and the others thought of the terraforming projects? Still, it was worth a look.

The Nereidium Montes popped over the horizon ahead. Mars had never had much tectonic movement, and so mountain ranges were rare; those

Chantum Montes. Boone adjusted his course southward, and in the early afternoon he soared low over the broad flat plain of the Argyre Basin. After the wild cratering of the highlands, the basin floor seemed smooth indeed, a flat yellowish plain bounded by the big curve of rim ridges. From his vantage he could see about ninety degrees of the arc of the rim, enough to give him a sense of the size of the impact that had formed Argyre; it was an amazing sight. Flying over thousands of Martian craters had given Boone a sense of the sizes they came in, and Argyre was simply off the scale; a quite big crater named Galle was no more than a pockmark in Argyre's rim! A whole world must have crashed in here! Or, at the very least, a damn big asteroid.

Inside the southeast curve of the rim, on the basin floor against the foothills of the Charitum, he spotted the thin white line of a landing strip. Easy to spot human constructs in such desolation, their regularity stood out like a beacon. Thermals were rising hard off the sunwarmed hills, and he turned down into one, dropping with a vibratory humm, the craft's wings bouncing visibly as it stooped. Dropping like a rock, like that asteroid, John thought with a grin, and he pulled up for the landing with a dramatic last flourish, putting down with as much precision as he could muster, aware of his reputation as a hot flyer, which of course had to be reinforced at every opportunity. Part of the job. . . .

But it turned out there were only two people in the trailers by the strip, and neither of them had watched him land. They were inside watching TV news from Earth; they looked up when he came in the inner lock door, and jumped to their feet to greet him. Ann was up one of the mountain canyons with a team, they told him, probably no more than two hours' drive away. John ate lunch with them, two Brit women with North accents, very tough and charming; then he took a rover and followed the tracks up a cleft into the Charitum. An hour's twisting climb up a flat-bottomed arroyo brought him to a mobile trailer, with three rovers parked outside it. Together they gave it the look of a dessicated café in the Mojave.

The trailer was unoccupied. Footprints led away from the camp in many directions. After thinking it over Boone climbed a knoll west of camp, and

The trailer would have been a bit crowded even without him. They sat in the main room knee-to-knee, while Simon Frazier heated spaghetti sauce and boiled water for pasta in the little kitchen nook. The trailer's sole window faced east, and as they ate they watched the shadow of the mountains stretch out over the floor of the great basin. John had brought along a half-liter bottle of Utopian cognac, and he broke it out after dinner to moans of approval. As the areologists sipped he cleaned the dishes ("I want to") and asked how their investigation was going. They were looking for evidence of ancient glacial episodes, which if found would support a model of the planet's early history that included oceans filling the low spots.

But Ann, John thought as he listened to them; would she want to find evidence of an oceanic past? It was a model that tended to lend moral support to the terraforming project, implying as it did that they were only restoring an earlier state of things. So probably she would not want to find any such evidence. Would that disinclination bias her work? Well, sure. If not consciously, then deeper. Consciousness was just a thin lithosphere over a big hot core, after all. Detectives had to remember that.

But everyone in the trailer seemed to agree that they weren't finding any evidence for glaciation, and they were all good areologists. There were high basins that resembled cirques, and high valleys with the classic U-shape of glacial valleys, and some dome-and-wall configurations that might have been the result of glacial plucking; all these features had been seen in satellite photos, along with one or two bright flashes that some people had thought might be reflections from glacial polish. But on the ground none of it was holding up. They had found no glacial polish, even in the most wind-protected sections of the U-shaped valleys; no moraines, lateral or butt; no signs of plucking, or of transition lines where nanatuks would have stuck out of even the highest levels of ancient ice. Nothing. It was another case of what they called sky areology, which had a history going back to the early satellite photos, and even to the telescopes. The canals had been sky areology; and many more bad hypotheses had been formulated in the same way, hypotheses that were only now being tested with the rigor of

But if there were glaciers the most recent would have been, what, a billion years ago? That much time would take care of any of the superficial signs, I should think, glacial polish or moraines or nanatuks. Leaving nothing but the gross landforms, which is what you have. Right?"

Ann had been silent, but now she said, "The landforms aren't unique to glaciation. All of them are common in Martian ranges, because they were all formed by rock falling out of the sky. Every kind of formation you can think of is out here somewhere, bizarre shapes limited only by the the angle of repose." She had refused any cognac, which surprised John, and now she stared at the floor with a disgusted look.

"Not U-shaped valleys, surely," John said.

"Yes, U-shaped valleys too."

"The problem is that the oceanic model isn't very falsifiable," Simon said quietly. "You can keep failing to find good evidence for it, and we are, but that doesn't disprove it."

The kitchen clean, John asked Ann to go out for a sunset walk. She hesitated, unwilling; but it was one of her rituals and everyone knew it, and with a quick grimace and a hard glance she agreed.

Once outside he led her up to the same peak he had napped on. The sky was a plum colored arch over the black serrated ridges surrounding them, and stars were popping into existence in a flood, hundreds per eyblink. He stood by her side; she stared away from him. The ragged skyline might have been a scene from Earth. She was a bit taller than him, a gaunt, angular silhouette. John liked her, but whatever reciprocal liking she may have had for him-and they had had some good talks in years past-had dissipated when he chose to work with Sax. He could have done anything he liked, her hard looks said, and yet he had chosen terraforming.

Well, it was true. He put his hand before her, forefinger raised. She punched her wristpad and suddenly her breathing sighed in his ear. "What," she said, without looking his way.

"It's about the sabotage incidents," he said.

"I thought so. I suppose Russell thinks I'm behind them."

"It's not so much that-"

to get there, and she almost didn't make it. And then an explosives dump went off by accident at the Elysian mohole, a minute after a whole crew left it. And all the lichen at Underhill were killed by a virus that shut down the whole lab."

Ann shrugged. "What do you expect from GEMs? It could have been an accident, I'm surprised it doesn't happen more often."

"It wasn't an accident."

"It all adds up to peanuts. Does Russell think I'm stupid?"

"You know he doesn't. But it's a matter of tipping the balance. A lot of terran money is being invested in the project, but it wouldn't take much bad publicity to get a lot of it to drop out."

"Maybe so," Ann said. "But you ought to listen to yourself when you say things like that. You and Arkady are the biggest advocates of some kind of new Martian society, you two plus Hiroko, maybe. But the way Russell and Frank and Phyllis are bringing up terran capital, the whole thing's going to be out of your hands. It'll be business as usual, and all your ideas will disappear."

"I tend to think we all want something similar here," John said. "We want to do good work in a good place. We just emphasize different parts of the process of getting there, that's all. If we only coordinated our efforts, and worked as a team--"

"We don't want the same things!" Ann said. "You want to change Mars, and I don't. It's as simple as that."

"Well. . . ." John faltered before her bitterness. They were moving slowly around the hill, in a complicated dance that imitated the conversation, sometimes face to face, sometimes back to back; and always her voice was right in his ear, and his in hers. He liked that about walker conversations, and used it, that insidious voice in the ear which could be so persuasive, caressing, hypnotic. "It's not that simple, even so. I mean, you ought to be helping those of us who are closest to your beliefs, and opposing those furthest away."

"I do that."

She turned her back on him. "You should ask the coyote about this stuff, John."

"The coyote?"

She laughed shortly. "Haven't you heard of him? He wanders around on the surface without a walker, people say. Pops up here and there, sometimes on both sides of the world in a single night. Knew Big Man himself, back in the good old days. And a big friend of Hiroko's. And a big enemy of terraforming."

"Have you met him?"

She didn't reply.

"Look," he said after nearly a minute of their shared breathing, "people are going to get killed. Innocent bystanders."

"Innocent bystanders are going to get killed when the permafrost melts and the ground collapses under our feet. I don't have anything to do with that either. I just do my work. Trying to catalog what was here before we came."

"Yes. But you're the most famous red of all, Ann. These people must have contacted you because of that, and I wish you'd discourage them. It might save some lives."

She turned to face him. Her helmet's faceplate reflected the western skyline, purple above, black below, the border between the two colors jagged and raw. "If you left the planet alone, it would save lives. That's what I want. I'd kill you if I thought it would help."

###

After that there was little to say. On the way back down to the trailer, he tried another topic. "What do you think happened to Hiroko and the rest of them?"

"They disappeared."

John rolled his eyes. "She didn't talk to you about it?"

"No. Did she talk to you?"

"No. I don't think she talked to anyone but her group. Do you know where they went?"

"No."

and asked them more questions about their work, and about groundwater levels in Argyre and the southern hemisphere generally. The big basins were low in elevation, but had been dehydrated in the impacts that formed them; and in general it appeared that the planet's water had mostly seeped north. Another part of the mystery: no one had ever explained why the northern and southern hemispheres were so different, it was the problem in areology, a solution to which might prove the key to explaining all the other enigmas of the Martian landscape, as tectonic plate theory had once explained so many different problems in geology. In fact some people wanted to use the tectonic explanation again, postulating that an old crust had slid over itself onto the southern half, leaving the north to form a new skin, then all of it freezing in position when planetary cooling stopped all tectonic movement. Ann thought that was ridiculous; in her opinion the northern hemisphere was simply the biggest impact basin of all, the ultimate bang of the Noachian. A similar-sized strike had knocked the moon out of the Earth, probably around the same time. The areologists discussed various aspects of the problem for a while, and John listened, asking an occasional neutral question.

They turned on the TV for news from Earth, and watched a short feature on the mining and oil drilling that was starting in Antarctica.

"That's our doing you know," Ann said from the kitchen. "They kept mining and oil out of Antarctica for almost a hundred years, ever since the IGY and the first treaty. But when terraforming began here it all collapsed. They're running out of oil down there, and the Southern Club is poor, and there's a whole continent of oil and gas and minerals right next to them, being treated like a national park by the rich northern countries. And then the south saw these same rich northern countries start to take Mars completely apart, and they said What the hell, you can tear a whole planet apart and we're supposed to protect this iceberg we've got right next door with all these resources we desperately need? Forget it! So they broke the Antarctic Treaty, and there they are drilling and no one's done a thing about it. And now the last clean place on Earth is gone too."

like what you want, and Frank doesn't like what anyone wants, and more people are coming every year supporting one position or another, even if they don't know it. So it could get ugly. In fact it's started to get ugly already, with these attacks on equipment. Can you imagine that happening at Underhill?"

"Hiroko's group was ripping off Underhill the whole time they were there," Ann said. "They had to've been, to take off like that."

"Yeah, maybe. But they weren't endangering people's lives." The image of the truck falling down the shaft came to him again, quick and vivid. He drank hot cocoa and scalded his mouth. "Damn! Anyway, whenever I get discouraged about all this I try to remember that it's natural. It's inevitable that people are going to fight, but now we're fighting about Martian things. I mean people aren't fighting over whether they're American or Japanese or Russian or Arab, or some religion or race or sex or whatnot. They're fighting because they want one Martian reality or other. That's all that matters now. So we're already halfway there." He frowned at Ann, who stared at the floor. "Do you see what I mean?"

She glanced at him. "It's the second half that matters."

"All right, maybe so. You take too much for granted, but that's the way people are. But you have to realize that you're having your effect on us, Ann. You've changed the way everyone thinks about what we're doing here. Hell, Sax and a lot of others used to talk about doing anything possible to terraform as quick as possible-driving a bunch of asteroids directly into the planet, using hydrogen bombs to try and start volcanoes-whatever it took! Now all those plans have been scrapped because of you and your supporters. The whole vision of how to terraform and how far to go with it has changed. And I think we can eventually reach a compromise value, where we get some protection from radiation, and a biosphere and maybe air we can breathe, or at least not die in immediately-and still leave it pretty much like it was before we came." Ann rolled her eyes at this, but he forged on: "No one's talking about pumping it up into a jungle planet you know, even if they could! It'll always be cold, and the Tharsis bulge will

tearful year. But who knows what our kids will think is beautiful? It's sure to be based on what they know, and this place will be the only place they know. So we terraform the planet; but the planet areoforms us."

"Areoforming," Ann said, and a rare little smile flashed over her face; seeing it John felt his face flush; he hadn't seen her smile like that in years, and he loved Ann, he loved to see her smile.

"I like that word," she said now. She pointed a finger at him: "But I'll hold you to it, John Boone! I'll remember what you've said tonight!"

"Me too," he said.

###

The rest of the evening was more relaxed. And the next day Simon saw him down to the airstrip, to the rover he was going to drive northward, and Simon, who usually would have seen him off with a smile and a handshake, at most a "nice to see you," suddenly said to him, "I really appreciate what you said last night. I think it really cheered her up. Especially what you said about kids. She's pregnant, you see."

"What?" John shook his head. "She didn't tell me. Are you the, the father?"

"Yeah." Simon grinned.

"How old is she now, sixty?"

"Yeah. It's stretching things a bit, so to speak, but it's been done before. They took an egg frozen about fifteen years ago, fertilized it and planted it in her. We'll see how it goes. They say Hiroko stays pregnant all the time these days, just keeps popping them like an incubator, same C section over and over."

"They say a lot of things about Hiroko, but it's all just stories."

"Well, but we heard this from someone who supposedly knows."

"The coyote?" John said sharply.

Simon raised his eyebrows. "I'm surprised she told you about him."

John grunted, obscurely annoyed. No doubt his fame meant he missed out on a lot of gossip. "It's good that she did. Well, anyway-" He extended his right hand and they shook, hooking their fingers in the stiff clasp that had developed in the old space days. "Congratulations. Take care of her."

have a proper look.

He had never been to this part of the great canyon system; before the completion of the Marineris Transverse Highway it had been extremely hard to get to. It was dramatic, no doubt about it; the Melas cliff dropped a full three thousand meters from rim to canyon floor, so that the rim had a kind of glider's view north. The other wall of the canyon was just visible out there, its rim peeking over the horizon; and between the two cliffs lay the spacious expanse of Melas Chasma, the heart of the whole Marineris complex. He could just make out the gaps in distant cliffs that marked the entrances to other canyons: Ius Chasma to the west, Candor to the north, Coprates to the east.

John walked the broken rim for more than an hour, pulling his helmet's binocular lenses down over his faceplate for long periods of time, taking in as much as he could of the greatest canyon on Mars, feeling the euphoria of red land. He threw rocks over the side and watched them disappear, he talked to himself and sang, he hopped on his toes in a clumsy dance. Then he got back in his rover, refreshed, and drove a short distance along the rim, to the start of the cliff road.

Here the Transverse Highway became a single concrete lane, and switchbacked down the spine of an enormous rock ramp that extended down from the south rim to the canyon floor. This odd feature, called the Geneva Spur, pointed north almost perpendicularly from the cliff, straight toward Candor Chasma; it was so perfectly placed for their purposes that with the road on it, it looked like a ramp that the road-builders had constructed.

It was a steep spur, however, and the road had been forced to switchback all the way down, to keep the grade within reason. It was all visible from above; a thousand switchbacks snaking down the spine, looking like yellow thread stitched down a bump in a stained orange carpet.

Boone drove down this marvel carefully, turning the rover's steering wheel left then right then left then right, time after time until he actually had to stop to rest his arms, and give himself a chance to look back and up at the southern wall behind him; it was steep indeed, fluted by a fractal pattern

made up mostly of their earthmoving vehicles, traveling up to the west end of the canyon, to thread a road through Noctis Labyrinthus and onto the east flank of Tharsis. After that there would be other roads; perhaps one over the Tharsis Bulge between Arsia Mons and Pavonis Mons, perhaps one north to Echus Overlook. They weren't sure yet, and Boone got the impression they didn't really care; they planned to spend the rest of their lives traveling around building roads, so it didn't much matter to them where they went next. Road gypsies forever.

They made sure all their kids shook John's hand, and after dinner he gave a short talk, rambling in his usual way about their new life on Mars. "When I see you people out here it makes me really happy because it's part of a new pattern to life, we've got the chance to create a new society out here, everything's changing on the technical level and the social level might as well follow. I'm not exactly sure what the new society should be or should look like, that's the hard part after all, but I know that it should be done, and I think you and all the other small groups out on the surface are figuring it out on an empirical basis. And seeing you helps me to think about it." Which it did, though he was never much at doing it on his feet; so he just slithered along a bit more in his free associational way, plucking whatever stuck out of the bag of his thoughts. And their eyes shone in the lamplight as they listened to him.

Later he sat with a few of them in a circle around a single lit lamp, and they stayed up through the night talking. The young Swiss asked him questions about his first trip, and about the first years in Underhill, both of which obviously had mythic dimensions for them, and he told them the real story, sort of, and made them laugh a lot; and asked them questions about Switzerland, how it worked, what they thought of it, why they were here rather than there. A blond woman laughed when he asked that. "Do you know about the Böögen?" she said, and he shook his head. "He's part of our Christmas. Sami Claus comes to all the houses one by one, you see, and he has an assistant, the Böögen, who wears a cloak and a hood and carries a big bag. Sami Claus asks the parents how the children have been that year, and the parents show him the ledger, the record you know.

Sax's positions.

"I don't think they are either right," one of them said. His name was Jürgen and he was one of their leaders, an engineer who seemed some kind of cross between a burgermeister and a gypsy king, dark-haired and sharp-faced and serious. "Both sides say they are in favor of nature, of course. One has to say this. The reds say that the Mars that is already here is nature. But it is not nature, because it is dead. It is only rock. The greens tell this, and say they will bring nature to Mars with their terraforming. But that is not nature either, that is only culture. A garden, you know. An artwork. So neither way gets nature. There isn't such a thing as nature possible on Mars."

"Interesting!" John said. "I'll have to tell Ann that, and see what she says. But. . . ." He thought about it. "Then what do you call this? What do you call what you're doing?"

Jürgen shrugged, grinned. "We don't call it anything. It is just Mars."

Perhaps that was being Swiss, John thought. He had been meeting them more and more in his travels, and they all seemed like that. Do things, and don't worry too much about theory. Whatever seemed right.

Later still, after they had drunk another few bottles of wine, he asked them if they had ever heard of the coyote. They laughed; one said, "He's the one who came here before you, right?" They laughed again at his expression. "A story only," one explained. "Like the canals, or Big Man. Or Sami Claus."

Driving north the next day across Melas Chasma, John wished (as he had before) that everyone on the planet was Swiss, or at least like the Swiss. Or more like the Swiss in certain ways, anyway. Their love of country seemed to be expressed by making a certain kind of life: rational, just, prosperous, scientific. They would work for that life anywhere, because to them it was the life that mattered, not a flag or a creed or a set of words, nor even that small rocky patch of land they owned on Earth. The Swiss roadbuilding crew back there was Martian already, having brought the life and left the baggage behind.

never go to war, wasn't that one way of defining what he wanted for Mars? It seemed to him there were some lessons there, for any hypothetical Martian state.

He spent a fair amount of his time alone thinking about that hypothetical state; it was a kind of obsession with him, and he found it very frustrating that he could not seem to come up with anything more than vague desires. And so now he thought hard about Switzerland and what it might tell him, he tried to be organized about it: "Pauline, please call up an encyclopedia article on the Swiss government."

The rover passed transponder after transponder as he read the article that came up on the screen. He was disappointed to find that there was nothing obviously unique about the Swiss system of government. Executive authority was given to a council of seven, elected by the assembly. No charismatic president, which some part of Boone did not like very much. The assembly, aside from selecting the federal council, appeared to do little; it was caught between the power of the executive council and the power of the people, as exercised in direct initiatives and referendums, an idea they had gotten in the nineteenth century from California of all places. And then there was the federal system; the cantons in all their diversity were supposed to have a great deal of independence, which also weakened the assembly. But cantonal power had been eroding for generations, the federal government wresting away more and more. What did it add up to? "Pauline, please call up my constitution file." He added a few notes to the file he had just recently begun: Federal council, direct initiatives, weak assembly, local independence, particularly in cultural matters. Something to think over, anyway. More data to add to the stew of his ideas. It helped somehow to write it down.

He drove on, remembering the roadbuilders' calmness, their strange mixture of engineering and mysticism. The warmth of their welcome, which wasn't something Boone took for granted; it didn't always happen. In the Arab and Israeli settlements, for instance, he was received very stiffly, perhaps because he was seen as being anti-religion, perhaps because Frank had been spreading tales against him; he had been amazed to

on the northern plains somewhere. The great canyon was two hundred kilometers wide at this point, and the curvature of the planet was so sharp that the north and south canyon walls, all three vertical kilometers of them, were completely under the horizons. Not until the following morning did the northern horizon double, and then separate out into the canyon floor and the great northern wall, which was cut in two by the gap of a short north-south canyon connecting Melas and Candor. It was only when he drove into that wide slot that he had the kind of view people thought of when they imagined being down in Marineris: truly giant walls flanked him on both sides, dark brown slabs riven by a fractal infinity of gullies and ridges. At the foot of the walls lay the huge spills of ancient rockfall, or the broken terracing of fossil beaches.

In this gap the Swiss road was a line of green transponders, snaking past mesas and arroyos, so that it looked as if Monument Valley had been relocated at the bottom of a canyon twice as deep and five times as wide as the Grand Canyon. The sight was too astonishing for John to be able to concentrate on anything else, and for the first time in his journey he drove all day with Pauline off.

North of the transverse gap, he drove into the huge sink of Candor Chasma, and now it was as if he were in a gigantic replica of the Painted Desert, with great deposition layers everywhere, bands of purple and yellow sediment, orange dunes, red erratics, pink sands, indigo gullies; truly a fantastic, extravagant landscape, disorienting to the eye because all the wild colors made it hard to figure out what was what, and how big it was, and how far away. Giant plateaus that seemed about to block his way would turn out to be curving strata on a distant cliff; small boulders next to the transponders would turn out to be enormous mesas half a day's drive away. And in the sunset light all the colors blazed, the whole martian spectrum revealed and blazing as if color was bursting out of the rock, everything from pale yellow to dark bruised purple. Candor Chasma! He was going to have to come back some time and explore it.

The day after that, he drove up the steady slope of the north Ophir road, which the Swiss crew had completed the previous year. Up and up and up;

transitional aid to build a whole town to serve as headquarters for the terraforming effort, and he had placed this town about five hundred kilometers due west of Underhill, on the edge of the cliff that formed the eastern wall of Echus Chasma. Echus was one of the narrowest and deepest canyons on the planet, and its eastern wall was even taller than south Melas; the section they had chosen to build the town into was a vertical basalt cliff four thousand meters high.

At the top of the cliff there was very little sign of the new town; the land behind the rim was almost unmarked, only a concrete pillbox here and there, and to the north the plume of a Rickover. But when John climbed out of his rover into one of the rim pillboxes, and got in one of the big elevators inside it, the extent of the town began to come clear; the elevators went down fifty floors. And when he descended fifty stories, he got out and found other elevators that would take him even lower, a whole series of them, descending right down to the floor of Echus Chasma. Say a story was ten meters; that meant there was room in the cliff for four hundred stories. Actually not that much of the room had been used yet, and most of the rooms built so far were clustered up in the highest twenty floors. Sax's offices, for instance, were very near the top.

His meeting room was a big open chamber, with a continuous floor-to-ceiling window as its western wall. When John walked into the room looking for Sax, it was still mid-morning, and the window was almost clear; far, far below lay the chasm floor, still half in shadow, and there out in the sunlight stood the much lower western wall of Echus, and beyond that the great slope of the Tharsis bulge, rising higher and higher to the south. Out in the middle distance was the low bump of Tharsis Tholus, and to the left of it, just poking over the horizon, lay the purple cone of Ascraeus Mons, the northernmost of the great prince volcanoes, a full 1200 kilometers away.

But Sax was not in the meeting room, and he never looked out this window as far as John could tell. He was next door in a lab, more lab rat than ever, hunch-shouldered and twitch-whiskered, gazing around at the floor, speaking in a voice that sounded like an AI. He led John through a

and sat down. It was said Sax never left these rooms anymore. "What are you simming today?"

"Atmospheres."

Of course. It was a problem that gave Sax a serious case of the blinks. All the heat they were releasing or applying to the planet was thickening the atmosphere, but all their CO₂-fixing strategies were thinning it; and as the chemical composition of the air slowly shifted to something less poisonous it became less greenhouse-gassed as well, so that things cooled back down and the process slowed. Negative feedback countering positive feedback, all over the place. Juggling all these factors into any meaningful extrapolative program was more than anyone had yet accomplished to Sax's satisfaction, so he had resorted to his usual solution; he was trying to do it himself.

He paced the narrow aisles left between equipment, moving chairs out of his way. "There's just too much carbon dioxide. In the old days the modelers swept that under the rug. I think I'm going to have to have robots feed the southern polar cap into Sabatier factories. What we can process won't sublime, and we can release the oxygen and make bricks of the carbon, I guess. We'll have more carbon blocks than we'll know what to do with. Black pyramids to go along with the white."

"Pretty."

"Uhn." The Crays and the two new Schillers hummed away behind him, providing his monotonal recitative with a ground bass. These computers spent all their time running through one set of conditions after another, Sax said; but the results, while never the same, were seldom encouraging. The air was going to be cold and poisonous for a good while yet.

Sax wandered down the hall, and John followed him into what looked like another lab, although there was a bed and a refrigerator in one corner. Violently disarranged bookshelves were overgrown with potted plants, bizarre Pleistocene growths that looked as deadly as the air outside. John sat in the lone empty chair. Sax stood and looked down at a seashell shrub as John described his meeting with Ann.

"Do you think she's involved?" Sax said.

muttering about security measures. He opened the refrigerator door briefly and John caught a glimpse of more spiky growths; either he kept experiments in there, or else his snack food had suffered a truly virulent eruption of mold. John said, "You can see why most of the attacks have been on the moholes. They're the easiest project to attack."

Sax tilted his head to the side. "Are they?"

"Think about it. Your little windmills are everywhere, there's nothing to be done about them."

"People are disabling them. We've had reports."

"What, a dozen? And how many are out there, a hundred thousand? They're junk, Sax. Litter. Your worst idea." And nearly fatal to his project, in fact, because of the algae dishes Sax had hidden in some of them. All of that algae had died, apparently; but if it hadn't, and if anyone had been able to prove Sax had been responsible for its dissemination, he could have lost his job. It was yet another indication that Sax's logical manner was a front.

Now his nose was wrinkled. "They add up to a terawatt a year."

"And knocking a few apart won't do anything to that. As for the other physical operations, the black snow algae is on the northern polar cap, and can't be removed. The dawn and dusk mirrors are in orbit, and it's not so easy to knock them out."

"Someone did it to Pythagoras."

"True, but we know who it was, and there's a security team following her."

"She may never lead them to anyone else. They may be able to afford to expend a person per act, I wouldn't be surprised."

"Yeah, but some simple changes in screening personnel would make it impossible for anyone to smuggle any tools aboard."

"They could use what's out there." Sax shook his head. "The mirrors are vulnerable."

"Okay. More than some projects, anyway."

"Those mirrors adding thirty calories per square centimeter per sol," Sax said. "And more all the time." Almost all the freighters from Earth were sunsailers now, and when they arrived in the martian system they were

too in their way, they provide a lot of your power, and they're pumping out heat like the furnaces they are. If one of them were to go, it would cause all kinds of fallout, more political even than physical."

The vertical lines between Sax's eyes reached up nearly to his hairline. John held out his palms. "Not my fault. That's just the way it is."

Sax said, "A.I., take a note. Look into reactor security."

"Note taken," one of the Schillers said, sounding just like Sax.

"And that's not the worst," John said. Sax twitched, glared furiously at the floor. "The bioengineering labs."

Sax's mouth became a tight line.

"New organisms are being cooked up daily," John went on, "and it might be possible to create something that would kill everything else on the planet."

Sax blinked. "Let's hope none of these people think like you."

"I'm just trying to think like them."

"A. I., take a note. Biolab security."

"Of course Vlad and Ursula and their group have stuck suicide genes into everything they've made," John said. "But those are meant to stop oversuccess, or mutational accidents. If someone were to deliberately circumvent them, and concoct something that fed on oversuccess, we could be in trouble."

"I see that."

"So. The labs, the reactors, the moholes, the mirrors. It could be worse."

Sax rolled his eyes. "I'm glad you think so. I'll talk to Helmut about it. I'll be seeing him soon anyway. It looks like they're going to approve Phyllis's elevator at the next UNOMA session. That will cut the costs of terraforming tremendously."

"Eventually it will, but the initial investment must be huge."

Sax shrugged. "Push an Amor asteroid into orbit, set up a robot factory, let it go to work. It's not as expensive as you might think."

John rolled his eyes. "Sax, who's paying for all this?"

Sax tilted his head, blinked. "The sun."

processing plant in Chasima Borealis, her voiceover was enthusiastic but boring, "What's nice is we can pollute all we want with certain materials, oxygen, ozone, nitrogen, argon, steam, some biota-which gives us leeway we didn't have back home, we just keep grinding what they give us till we can let it loose." Back home, John said to himself. A newcomer. After her there was an attempt at a karate bout, both hilarious and beautiful at the same time; and then twenty minutes of some Russians staging Hamlet in pressure suits at the bottom of the Tyrrhena Patera mohole, a production that struck John as crazy until Hamlet caught sight of Claudius kneeling to pray, and the camera tilted up to show the mohole as cathedral walls, rising above Claudius to an infinitely distant shaft of sunlight, like the forgiveness he would never receive.

John shut off the TV and took the elevator down to the dorm. He got into bed and relaxed. Karate as ballet. The newcomers were all still engineers, construction workers, scientists of all kinds; but they didn't seem as single-minded as the first hundred, and that was probably good. They still had a scientific mindset and worldview, they were practical, empirical, rational; one could hope that the selection process on Earth was still working against fanaticism, sending up people with a kind of traveling-Swiss sensibility, practical but open to new possibilities, able to form new loyalties and beliefs. Or so he hoped. He knew by now it was a bit naïve. You only had to look at the first hundred to realize scientists could become as fanatical as anybody else, maybe more so; educations too narrowly focused, perhaps. Hiroko's team disappearing. . . . Out there in the wild rock somewhere, lucky bastards. . . . He fell asleep.

He worked at Echus Overlook a few days more, then got a call from Helmut Bronski in Burroughs, who wanted to confer with him about the new arrivals from Earth. John decided to take the train to Burroughs and see Helmut in person.

The night before his departure, he went to see Sax in his labs; when he walked in Sax said in his monotone, "We've found an Amor asteroid that's ninety percent ice, in an orbit that will bring it near Mars in three years. Just what I've been looking for, in fact." His plan was to place a robot-

That's what the simulations indicate. Of course with the initial level so low, doubling is not as impressive as it sounds."

"Still, that's great, Sax. And it'll be hard to sabotage."

But Sax didn't want to be reminded of that. He frowned slightly, and slipped away.

John laughed at his skittishness, and went to the door. Then he stopped to think, and looked up and down the hall. Empty. And no video monitors in Sax's offices. He went back in, grinning at his own furtive tiptoes, and glanced around at the paper chaos on Sax's desk. Where to start? Presumably his AI would be the repository of anything interesting, but probably it would only respond to Sax's voice, and would surely keep a record of any other inquiries. Quietly he opened a desk drawer. Empty. All the drawers in the desk were empty; he almost laughed out loud, stifled it. There was a stack of correspondence on a lab bench; he picked through it. Mostly notes from the biologists at Acheron. At the bottom of the stack was a single sheet of unsigned mail, with no return address or origin code; Sax's printer had spit it out without any identification that John could see. The message was brief:

"1). We use suicide genes to curb proliferation. 2). There are so many heat sources now on the surface that we don't think anyone can tell our exhaust from the rest of it. 3). We simply agreed we wanted to get off and work on our own, without interference. I'm sure you understand now."

After a minute of staring at this John whipped his head up and looked around. Still alone. He glanced at the note again, put it back where he had found it and walked quietly out of Sax's offices, back to the guest quarters. "Sax," he said admiringly, "you tricky congress of rats!"

###

The train to Burroughs carried mostly freight, thirty narrow cars of it, with two passengers cars up front, running over a superconducting magnetic piste so quickly and smoothly that it was hard to believe the view; after John's endless plods cross-country in rovers, it was almost frightening. The only thing to do was flood the pleasure centers in the old brain with

like terran horizons, and as the train flew down the great trough Boone could see across mesa-dotted dark plains to horizons some sixty kilometers away.

Burroughs's buildings were almost all cliff-dwellings, cut into the sides of five low mesas that were grouped together on a rise in the bend of an ancient curving channel. Big sections of the mesas' vertical sides had been filled by rectangles of mirrored glass, as if postmodern skyscrapers had been turned on their sides and shoved into the hills. A startling sight, in fact, and far more impressive than Underhill, or even Echus Overlook, which had a great view but could not be seen. No, the glass-sided mesas of Burroughs, on their rise over a channel that seemed to be begging for water, with a view out to distant hills; these features combined to give the new town a quickly growing reputation as the most beautiful city on Mars.

Its western train station was inside one of the excavated mesas, a glass-walled room sixty meters high. John stepped out into this grand space and made his way through the crowds of people, head craned back like a hick in Manhattan. Train crews were dressed in blue jumpers, prospecting teams in walker green, UNOMA bureaucrats in suits, construction workers in work jumpers, colored like rainbows to suggest sportswear. UNOMA headquarters had been located in Burroughs three years before, and that had caused a real building boom; it was a close thing whether there were more UNOMA bureaucrats or construction workers in the station.

At the far end of the great room John found a subway entrance, and took a little subway car to the UNOMA headquarters. In the car he shook hands with a few people who recognized and approached him, feeling the old weirdness of the fishbowl return. He was back among strangers. In a city.

That night he had dinner with Helmut Bronski. They had met many times before, and John was impressed by the man, a German millionaire who had gotten into politics: tall, beefy, blond and red-faced, impeccably groomed, dressed in an expensive gray suit. He had been the EEC's minister of finance when he took the UNOMA post. Now he told John the

give some concessions now. There is no rational reason to delay, and if we tried there would be trouble in the general assembly."

"But the general assembly can't be happy that you've given the first concession to an old South African weapons manufacturer!"

Helmut shrugged. "Armcor has very little relation to its origins. It is just a name. When South Africa became Azania, the company moved its home offices to Australia, and then to Singapore. And now of course it has become very much more than an aerospace firm. It is a true transnational, one of the new tigers, with banks of its own, and controlling interest in about fifty of the old Fortune 500."

"Fifty of them?" John said.

"Yes. And Armcor is one of the smallest of the transnationals, that is why we picked it. But it still has a bigger economy than any but the largest twenty countries. As the old multinationals coalesce into transnationals, you see, they really gather quite a bit of power, and they have influence in the general assembly. When we give one a concession, some twenty or thirty countries profit by it, and get their opening on Mars. And for the rest of the countries, that serves as a precedent. And so pressure on us is reduced."

"Uh huh." John thought it over. "Tell me, who negotiated this agreement?"

"Well, it was a number of us, you know."

Helmut ate on, serenely ignoring John's steady gaze.

John pursed his lips, looked away. He understood suddenly that he was talking with a man who, though a functionary, yet considered himself to be vastly more important on the planet than Boone. Genial, smooth-faced (and who cut his hair?), Bronski leaned back and ordered them after-dinner drinks. His assistant, their waitress for the evening, scurried off to oblige.

"I don't believe I've been waited on before on Mars," John observed.

Helmut met his gaze calmly, but his beefy color had heightened. John almost smiled. The UNOMA factor wanted to seem menacing, the representative of powers so sophisticated that John's little weather station mentality couldn't even comprehend them. But John had found in the past

hundred-perhaps to gauge the reaction of the rest? That would be silly, for to get a good gauge on the first hundred you would need to poll eighty of them at least; but that didn't mean it wasn't true. John was used to being taken for a representative of things, for a symbol. The figurehead again. It could definitely be a waste of time.

He wondered if he could salvage something of his own from the evening, and as they were walking back to his guest suite, he said, "Have you ever heard of the coyote?"

"An animal?"

He grinned, left it at that. In his room he lay on his bed, Mangalavid on the TV, thinking things over. Brushing his teeth before going to sleep, he looked his mirror image in the eye and scowled. He waved his toothbrush in the expansive gesture: "Vell," he said in a horrible parody of Helmut's accent, "Ziss is business, you know! Business as usual!"

###

The next morning he had a few hours before his first meeting, and so he spent the time with Pauline, going over what he could find out about Helmut Bronski's doings in the last sixth months. Could Pauline get into the UNOMA diplomatic pouch? Had Helmut ever been to Senzeni Na, or any of the other sabotage sites? While Pauline ran through her search algorithms John swallowed an omegendorph to kill his hangover, and thought about what lay behind this inspiration to search Helmut's records. UNOMA constituted the ultimate authority on Mars these days, at least according to the letter of the law. In practice, as last night had made clear, it had the UN's usual toothlessness before national armies and transnational money; unless it did their bidding it was helpless, it could not succeed against their desires and probably would never even try, as it was their tool. So what did they want, the national governments and the transnational boards of directors? If enough sabotages occurred, would that constitute a reason to bring in more of their own security? Would it tend to increase their control?

He made a disgusted noise. Apparently the only result of his investigation so far was that the list of suspects had tripled. Pauline said,

Burroughs, at the easternmost extension of the Nilosyrtis Mensae. The mensae were a series of long mesas, like islands of the southern highlands standing out in the shallows of the northern plains. The island mesas of Nilosyrtis had recently been found to be a rich metallogenic province, with deposits of copper, silver, zinc, gold, platinum and other metals. Concentrations of ore like this had been discovered in several locations on the so-called Great Escarpment, where the southern highlands dropped to the northern lowlands; some areologists were going so far as to label the entire escarpment region a metallogenic province, banding the planet like the stitching on a baseball. It was another odd fact to add to the great north-south mystery, and a fact that was, of course, getting more than its share of attention. Excavations accompanied by intensive areological studies were being conducted by scientists working for UNOMA and, John discovered as he checked new arrivals' employment records, the transnationals; all trying to find clues that would enable them to locate more deposits. But even on Earth the geology of mineral formation was not well understood, which was why prospecting still had large elements of chance in it; and on Mars, it was more mysterious yet. The recent finds on the Great Escarpment had been mostly an accident, and only now was the region becoming the main focus for prospecting.

The discovery of the Bradbury Point complex had accelerated this hunt, as it was turning out to be as big as the largest terran complexes, perhaps the equal of the Bushveldt Complex of Azania. So; a gold rush in Nilosyrtis. And Helmut Bronski had visited the scene.

Which turned out to be small and utilitarian, a mere beginning; a Rickover and some refineries, next to a mesa hollowed out and filled by a habitat. The mines were scattered in the lowlands between mesas. Boone drove up to the habitat, coupled to the garage, then ducked through the locks. Inside a welcoming committee greeted him, and took him up to a window-walled conference room to talk.

There were, they said, about three hundred people in Bradbury, all employees of UNOMA, and trained by the transnational Shellalco. When they took John on a brief tour, he found they were a mix of ex-South

two kilometers long. There they got out, and followed John as he walked around. Surrounded by big robotic dozers and dumptrucks and earth movers, his four escorts' faceplates were all eyes; on the alert for a behemoth on the loose, John guessed. He stared at them, amazed at their timidity; it made him realize, all of a sudden, that Mars could be just another version of the hardship assignment, a hellish combination of Siberia, the interior of Saudi Arabia, the South Pole in winter, and Novy Mir.

Or else they just thought he was a dangerous man to be around. Which gave him a start. Everyone had no doubt heard of the falling dump truck; maybe it was just that. But could it be something more? Might these people be aware of something that he wasn't? Reflecting on this for a while, John found his own eyes beginning to press glass; he had been thinking of the falling truck as an accident, or at least something that could only happen once. But his movements were easy to trace, everyone knew where he was. And every time you went outdoors you were only a walker away, as they said. And in a pit mine there were a lot of behemoths about.

...

But they got back in without incident. And that night they had the usual dinner and party in his honor, a hard-drinking party, with a lot of omegendorph consumption and loud raucous talk: a bunch of young tough engineers, pleased to find that John Boone was actually a fun guy to party with. A fairly common reaction among newcomers, especially younger men. John chatted them up, and had a good time, and slipped his inquiries into the flow pretty unnoticably, he thought. They had not heard of the coyote, which was interesting, as they did know about Big Man, and the hidden colony. Apparently the coyote was not in that category of tale; he was some kind of insider thing, known, so far as John could tell, only to some of the first hundred.

The miners had had a recent unusual visit, however; an Arab caravan had come by, traveling the edge of Vastitas Borealis. And, they said, the Arabs had claimed to have been visited by some of "the lost colonists," as they called them.

we'll hold onto it until it's worth more. Or until they build that space elevator."

"You believe in that?"

"Oh yeah, the materials are there! Graphite whisker reinforced with diamond spirals, why you could almost build one on Earth with that. Here, it would be a snap."

John shook his head. That afternoon they drove for an hour back to the habitat, past raw pits and slag heaps, toward the distant plume of the refineries on the other sides of the habitat mesa. He was used to seeing the land torn up for building purposes, but this. . . it was amazing what a few hundred people could do. Of course it was the same technology that was allowing Sax to build a vertical town the whole height of the Echus Overlook, the same technology that allowed all the new towns to be built so quickly; but still, wreaking such havoc just to strip away metals, destined for Earth's insatiable demand. . . .

The next day he gave the operations chief a fiendishly tight security regimen, to be followed for two months; and then drove out into the wind-eroded tracks of the Arab caravan, and followed them north and east.

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It turned out that Frank Chalmers was traveling with this Arab caravan. But he had not seen or heard of any visitation by Hiroko's people, and none of the Arabs would admit to being the one who had told the story at Bradbury Point. A false lead, then. Or else one that Frank was helping the Arabs to eliminate; and if so, how would John find that out? Though the Arabs had only recently arrived on Mars, they were already Frank's allies, no doubt about it; he lived with them, he spoke their language, and now, naturally, he was the constant mediator between them and John. Not a chance of an independent investigation, except what Pauline could do in the records, which she could do as well away from the caravan as in it.

Nevertheless, John traveled with them for a while as they roamed the great dune sea, doing areology and a bit of prospecting. Frank was only

full-tilt Chamber of Commerce overdrive, "Got to stake a claim on the Escarpment before the transnats and the Germans snap everything up, lotta work to be done!" which was his constant refrain, often said while pointing for illustration at the little globe he carried with him in his lectern pocket. "Look at your moholes, I just entered them last week, one near the north pole, three in the sixties north and south, four along the equator, one near the south pole, all of them nicely placed west of volcanic rises to catch their updrafts, it's beautiful." He spun the globe and the blue dots marking the moholes blurred for a moment into blue lines. "It's good to see you finally doing something useful."

"Finally."

"Look, here's the new habitat factory in Hellas. They're manufacturing starter units at a rate that'll enable them to handle some three thousand emigrants per Ls ninety, and given the new fleet of roundtrip shuttles, that's just barely enough." He saw John's expression and said quickly, "All heat in the end, John, so it helps the terraforming with more than just money and labor, I mean think about it."

"But do you ever wonder what's going to come of it all?" John asked.

"What do you mean?"

"You know, this deluge of people and equipment, while things are falling apart on Earth."

"Things are always going to be falling apart on Earth, you might as well get used to it."

"Yeah, but who's going to own what up here? Who's going to call the shots?"

Frank just made a face at John's naïveté, at the very nature of the question. One look at his grimace and John could read it all, the whole complex of disgust and impatience and amusement. A part of John was pleased at this instant recognition; he knew his old friend better than he had ever known any of his family, so that the swarthy pale-eyed face glowering at him was like that of a brother, a twin that he couldn't ever remember not knowing. On the other hand, he was annoyed with Frank for his condescension. "People are wondering about it, Frank. It's not just me,

meat or baked lamb and oil-flavored yogurt, delicious and exotic. But John found himself still irritated at Frank's scorn, which never let up. The old rivalry, sharp as ever; and no First Man routine would ever make a dent in Frank's sneery arrogance.

Thus when Maya Toitovna showed up unexpectedly the next day, traveling west on her way to Acheron, John gave her a longer hug than he might have otherwise; and by the time that night's dinner was over, he had made certain that she would spend the night in his rover—a matter of a particular attentiveness, a certain laugh, a certain look, the nearly-accidental brushing of arms together as they stood trying sherbets, talking to the happy men of the caravan, who clearly found her fascinating. . . all their old code of conciliation and seduction, established through the years. And Frank could only watch, deapan, talking in Arabic to his Egyptian friends.

And that night, as John and Maya made love in John's rover bed, John pulled up from her briefly and looked down at her white body, and thought So much for political power Frank buddy! That deadpan look had told it all, the fierce desire for Maya still there, still burning. Frank, like most of the men in the caravanserai that night, would have loved to have been in John's place at that moment; once or twice in the past he no doubt had been; but not when John was around. No, tonight Frank would be reminded what real power was made of.

Distracted by such nastiness, it took John a while to pay any real attention to Maya herself. It had been almost five years since he and she had slept together, and in the intervening time he had had several other partners, and knew she had lived for a time with an engineer in Hellas. It was strange to begin again, as they knew each other intimately and yet and didn't. Her turning face flickering under him in the dim light, sister then stranger, sister then stranger. . . . Something happened, then, something turned in him; all that exterior business fell away, all those games. Something in her face, in the way she was all there, the way she would give her whole self to him when they made love. He didn't know anyone else who was quite like that.

as if she weren't, somehow, irreplaceable? He crushed her with a hug and they twisted together, bit at each other, panted and moaned; came together as they had so often before, Maya pulling him over the edge with her. Their ritual.

And even afterwards, just talking, he somehow felt very much more fond of her. He had started things just to irk Frank, it was true; he had been completely careless of her; but now, lying beside her, he could feel how much he had missed her presence in the previous five years, how bland life had seemed. How much he had missed her! New feelings-they always surprised him, he kept assuming he was too old for them, that he had more or less stopped changing. And then something would happen. And so often that something (thinking back over the years) was a meeting with Maya. . . .

She was still the same Maya Toitovna, however: mercurial, full of her own thoughts and plans, full of herself; she had no idea what John was doing out there on the dunes, and would never think to ask. And she would slash him to ribbons if he accidentally crossed her mood, he could tell that just in the sultry set of her shoulders, just in the way she padded off to the toilet. But he knew all that already, it was old news, something from the first years at Underhill, so long ago; and the sheer familiarity of it was pleasing-even her irritability was pleasing! Like Frank and his scorn. Well, he was getting old, and they were family. He almost laughed, he almost said something to set her off, then thought better of it. Just knowing was enough, no need for another demonstration, Lord! At that thought he did laugh, and she smiled to hear it, and came back to bed and shoved him in the chest. "Laughing at me again I see! Because of my fat bottom is it?"

"You know your bottom is perfect." She shoved him again, insulted at what she considered a gross lie, and their wrestling drew them back into the reality of skin and salt, into the world of sex. At some point in the long lazy session he found himself thinking I love you, wild Maya, I really do. It was a disconcerting thought, a dangerous thought. Not something he would risk saying. But it felt true.

He signed and gave up on it, and decided to leave. Stocking his rover the night before his departure (the Arabs were punctilious about filling his hold with supplies), he pondered what he had accomplished so far in his investigation of the sabotages. So far Sherlock Holmes was in no danger, that was sure. Worse than that, there was now a whole society on Mars that was basically impenetrable to him. Moslems, what were they exactly? He read Pauline that evening after he was done stocking, and then he rejoined his hosts and watched them as closely as he was able, asking questions all that night long. . . . He knew asking questions was the key to people's souls, infinitely more useful than wit; but in this case it didn't seem to make any difference. Coyote? Some kind of wild dog was it?

Baffled, he left the caravan the next morning and drove west, on the southern border of the dune sea. It would be a long journey to Acheron to join Maya, five thousand kilometers of dune after dune; but he preferred driving to going down to Burroughs and taking the train. He needed time to think. And really it was a kind of habit now, driving cross-country, or flying gliders-getting away, traveling slowly across the land. He had been on the road for years now, criss-crossing the northern hemisphere and making long excursions into the south, inspecting moholes or doing favors for Sax or Helmut or Frank, or looking into things for Arkady, or cutting ribbons at the opening of one thing or another-a town, a well, a weather station, a mine, a mohole-and always talking, talking in public speeches or private conversations, talking to strangers, old friends, new acquaintances, talking almost as fast as Frank did, and all in an attempt to inspire the people on the planet to figure out a way to forget history, to build a functioning society. To create a scientific system designed for Mars, designed to their specifications, fair and just and rational and all those good things. To point the way to a new Mars!

And yet after every year that passed, it seemed less likely to happen the way he had envisioned it. A place like Bradbury Point showed how rapidly things were changing, and people like the Arabs confirmed the impression; events were out of his control, and more than that, out of anyone's control. There was no plan. He rolled west on autopilot, up and down over dune

not only beyond his control, but even beyond his ability to comprehend-it wasn't right, he had to fight it!

And yet how? Social planning of some sort. . . clearly they had to have it. This flailing about without a plan, in violation of even the flimsy plan people had made back at the beginning with the Mars treaty. . . well, societies without a plan, that was history so far; but history so far had been a nightmare, a huge compendium of examples to be avoided. No. They needed a plan. They had a chance at a new start here, they needed a vision. Helmut the oily functionary, Frank with his cynical acceptance of the status quo, his acceptance of the breakdown of the treaty, as if they were in a kind of gold rush; Frank was wrong. Wrong as usual!

But his own rushing about was probably wrong too. He had been operating on the unarticulated theory that if he only saw more of the planet, visited one more settlement, talked to one more person, that he would somehow (without really thinking too hard) get it-and that his holistic understanding would then flow back from him to everybody else, spreading out through all the new settlers and changing things. Now he was pretty sure that this feeling had been naïve; there were so many people on the planet these days, he could never hope to connect with them, to become the articulator of all their hopes and desires. And not only that, but few of the newcomers seemed much like the first hundred in regard to their reasons for coming. Well, that wasn't entirely true; there were still scientists coming up, and people like the Swiss roadbuilding gypsies. But he didn't know them like he did the first hundred, and he never would. That little band had formed him, really, they had shaped his opinions and ideas, had taught him; they were his family, he trusted them. And he wanted their help, he needed it now more than ever. Perhaps it was that which explained the sudden new intensity of his feeling for Maya. And perhaps it was this that made him so angry with Hiroko-he wanted to talk to her, he needed her help! and she had abandoned them.

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be melted brown sugar.

"It's a new kind of cryptogamic crust," Vlad said when John asked him about it. "A symbiosis of cyanobacteria and Florida platform bacteria. The platform bacteria goes very deep, and converts sulfates in the rock to sulfides, which then feed a variant of *Microcoleus*. The top layers of that grow in filaments, which bind to sand and clay in big dendritic formations, so it's like little forest sylvanols with really long bacterial root systems. It looks like these root systems will keep on going right down through the regolith to bedrock, melting the permafrost as they go."

"And you've released this stuff?" John said.

"Sure. We need something to bust up the permafrost, right?"

"Is there anything to stop it from growing planetwide?"

"Well, it has the usual array of suicide genes in case it begins to overwhelm the rest of the biomass, but if it keeps to its niche. . . ."

"Wow."

"It's not too unlike the first life forms that covered the terran continents, we think. We've just enhanced its speed of growth, and its root systems. The funny thing is that I think at first it's going to cool the atmosphere, even though it's warming things underground. Because it'll really increase chemical weathering of the rock, and all those reactions absorb CO₂ from the air, so the air pressure is going to drop."

Maya had come up and joined them with a big hug for John, and now she said, "But won't the reactions release oxygen as fast as they absorb CO₂, and keep air pressure up?"

Vlad shrugged. "Maybe. We'll see."

John laughed. "Sax is a long term thinker. He'll probably be pleased."

"Oh yes. He authorized the release. And he's coming to study here again when spring comes."

They had dinner in a hall located high on the fin, just under the crest. Skylights opened above to the greenhouse on the crest itself, and windows ran the length of the north and south walls; stands of bamboo filled the walls to east and west. All the residents of Acheron were there for dinner, holding to an Underhill custom as they did in many other ways. The

her clinic a couple days later. There he was put through a battery of diagnostic tests that seemed even more intensive than usual, most of them run by imaging machines and computers with too-relaxing voices, telling him to move this way and then that, while John in complete ignorance did what he was told. Modern medicine. But after all that, he was poked and prodded and tapped in time-honored fashion by Ursula herself. And when it was over he was lying on his back with a white sheet over him, while she stood at his side, looking at read-outs and humming absently.

"You're looking good," she told him after several minutes of that. "Some of the usual gravity-related problems, but nothing we can't deal with."

"Great," John said, feeling relieved. That was the thing about physicals; any news was bad news, one wanted an absence of news. Getting that was somehow a victory, and more so every time; but still, a negative accomplishment. Nothing had happened to him, great!

"So do you want the treatment?" Ursula asked, her back to him, her voice casual.

"The treatment?"

"It's a kind of gerontological therapy. An experimental procedure. Somewhat like an inoculation, but with a DNA strengthener. Repairs broken strands, and restores cell division accuracy to a significant degree."

John sighed. "And what does that mean?"

"Well, you know. Ordinary aging is mostly caused by cell division error. After a number of generations, ranging from hundreds to tens of thousands depending which kind of cells you're talking about, errors in reproduction start to increase, and everything gets weaker. The immune system is one of the first to weaken, and then other tissues, and then finally something goes wrong, or the immune system gets overwhelmed by a disease, and that's it."

"And you're saying you can stop these errors?"

"Slow them down, anyway, and fix the ones that are already broken. A mix, really. The division errors are caused by breaks in DNA strands, so we wanted to strengthen DNA strands. To do it we would read your

been combined by the Acheron group, Ursula explained. And the result seemed to be that they could give him an infection of bits of his own genome, an infection which would invade every cell in his body except for parts of his teeth and skin and bones and hair; and afterwards he would have nearly flawless DNA strands, repaired and reinforced strands that would make subsequent cell division more accurate.

"How accurate?" he asked, trying to grasp what it all meant.

"Well, about like if you were ten years old."

"You're kidding."

"No, no. We've all done it to ourselves, back around Ls ten of this year, and so far as we can tell, it's working."

"Does it last forever?"

"Nothing lasts forever, John."

"How long then?"

"We don't know. We ourselves are the experiment, we figure we'll find out as we go along. It seems possible we might be able to do the therapy again when the rate of division error begins to increase again. If that is successful, it could mean you would last for quite a while."

"Like how long?" he insisted.

"Well, we don't know, do we. Longer than we live now, that's pretty sure. Possibly a lot longer."

John stared at her. She smiled at the expression on his face, and he could feel that his jaw was slack with amazement; no doubt he looked less than brilliant, but what did she expect? It was. . . . it was. . . .

He was following his thoughts with difficulty as they skittered around. "Who have you told about this?" he asked.

"Well, we have asked everyone in the first hundred, when they get a check-up with us. And everyone here at Acheron has tried it. And the thing is, we've only combined methods that everyone has, so it won't be long before others try putting it all together too. So we're writing it up for publication, but we're going to send the articles first to be reviewed by the World Health Organization. Political fallout, you know."

is that true? They might try to put a clamp on it. Maybe even a comprehensive clamp, I don't know."

"Wow. But you folks . . . you just went ahead and did it?"

"We did." She shrugged. "So what do you say? Want to do it?"

"Let me think about it."

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He went for a walk on the crest of the fin, up and down the long greenhouse stuffed with bamboo and food crops. Walking west he had to shield his eyes from the glare of the afternoon sun, even through the filtered glass; walking back east, he could look out at the broken slopes of lava stretching up to Olympus Mons. It was hard to think. He was sixty-five years old; born in 1989, and what was it back on Earth now, 2048? M-11, eleven long hi-rad martian years. And he had spent thirty-five months in space, including three trips between Earth and Mars, which was still the record. He had taken on 195 rem in those trips alone, and he had low blood pressure and a bad HDL to LDL ratio, and his shoulders ached when he swam and he felt tired a lot. He was getting old. He didn't have all that many years left, weird though it was to think of it; and he had a lot of faith in the Acheron group, who, now that he thought of it, were wandering around their aerie working and eating and playing soccer and swimming and so on with little smiles of absorbed concentration, with a kind of humming. Not like ten year-olds, certainly not; but with an aura of suffused, absorbed happiness. Of health, and more than health. He laughed out loud, and went back down into Acheron looking for Ursula. When she saw him she laughed too. "It's not really that hard a choice, is it."

"No." He laughed with her. "I mean, what have I got to lose?"

###

So he agreed to it. They had his genome in their records, but it would take a few days to synthesize the collection of repair strands and clip them onto plasmids, and clone millions more. Ursula told him to come back in three days.

he felt a shiver of fondness for her. Standing next to her washing the dishes, observing her hands shake as she spoke, he felt exceptionally close to her; it was as if they knew each other's thoughts, as if, after all the years, in the face of this bizarre development, there were no need for words, only for each other's presence. That night in the warm dark of their bed she whispered hoarsely, "We'd better do it twice tonight. While it's still us."

###

Three days later they both got the treatment. John lay back on a medical couch in a small room, and stared at an intravenous plug in the back of his hand. An IV feed shot, just like all those he'd had before. Except this time he could feel a strange heat rising up his arm, flushing his chest, pouring down his legs. Was it real? Was he imagining it? For a second he felt extremely odd all over, as if his ghost had walked through him. Then he was just very hot. "Should I be this hot?" he asked Ursula anxiously.

"It's like a fever at first," she said. "Then we put a small shock through you to push the plasmids into your cells. After that it's more chills than fever, as the new strands bond to the old. People often feel quite cold, actually."

An hour later a big IV bag had drained into him. He was still hot, and his bladder was full. They let him get up and go to the bathroom, then when he returned he was strapped into what looked like a cross between a couch and an electric chair. That didn't bother him; astronaut training had inured him to all devices. The shock when it came lasted about ten seconds, and felt like a disagreeable tickling everywhere in him. Ursula and the others detached him from the apparatus; Ursula, her eyes twinkling, gave him a kiss full on the mouth. She warned him again that in a while he would start to feel chilled, and that it would last for a couple of days. It was okay to sit in the saunas or whirlpool baths; in fact they recommended it.

###

So he and Maya sat in the corner of a sauna together, huddled in the penetrating warmth, watching the bodies of the other visitors, who came in

the crest greenhouse, looking out at the dunes to the north, the chaotic lava to the south. The view north reminded Maya of early Underhill, with the random litter of stones on Lunae replaced by Arcadia's windswept quilt pattern of dunes; as if her memory had cleaned up her recollections of that time, making them more patterned, tinting their faded ochres and reds to rich lemon yellows. Patination of the past. He stared at her curiously. It had been m-eleven years since those first days in the trailer park, and in most of the years since, the two of them had been lovers, with a number of (blessed) interruptions and separations, of course, caused by circumstances or, more usually, their inability to get along. But they had always started again when the opportunities came, and the upshot was that now they knew each other just about as well as any old married couple with a less interrupted history; perhaps even better, because any completely constant couple was likely to have stopped paying attention to each other at some point, while the two of them, with all their separations and reunions, fights and rapprochements, had had to relearn each other countless times. John said some of this to her, and they talked about it; it was a pleasure to talk about it; "We have had to keep paying attention," Maya said intently, nodding with a look of solemn satisfaction, sure that this was mostly her doing. Yes, they had paid attention, they had never fallen into the mindless rut of habit. Surely, they both agreed as they sat in the baths, or walked the crest, this compensated for the time they had spent apart, more than compensated for it. Yes; no doubt they knew each other even better than any old married couple.

And so they talked, trying to stitch their pasts to this strange new future, in the anxious hope that it would not prove to be an unbridgeable rupture. And late the following evening, two days after the inoculation, sitting alone naked in the sauna, their flesh still cold, their skin all rosy with sweat, John looked at Maya's body sitting there beside him, as real as a rock, and he felt a glow like the IV injection running all through him. He had not eaten much since the treatment, and the beige and yellow tiles they sat on had started to throb, as if lit from within; light gleamed on every water droplet covering the tiles, like tiny chips of lightning scattered everywhere, and

beside him in the process of being reborn was the pink body of Maya Toitovna, Maya's body which he knew better than his own. And not only in this moment, but through time; he could recall vividly his first sight of her naked, floating toward him in the bubble chamber on the Ares, surrounded by a nimbus of stars and the black velvet of space. And every change in her since then was perfectly visible to him, the shift from the image in his memory to the body beside him was a hallucinatory time-dissolve, her flesh and skin shifting, dropping, lining-aging. They were both older, creakier, heavier. That was the way it went. But really the amazing thing was how much had remained, how much they were still themselves. Lines from a poem came to him, the epitaph of the Scott expedition near Ross Station in Antarctica, they had all climbed the hill to see the big wooden cross together, and carved on it had been lines: much has gone yet much remains. . . something like that. He couldn't remember-much had gone; it had been a long time ago, after all. But they had worked hard, and eaten well, and perhaps Mars's gravity had been kinder than Earth's would have been; because the obvious glowing truth was that Maya Toitovna was still a very beautiful woman, strong and muscly, her imperial face and gray wet hair still commanding his gaze, her breasts still magnets to his eye, completely different in appearance if she so much as shifted an elbow, and yet in every position completely familiar to him. . . his breasts, his arms, ribs, flanks. She was, for better and worse, the person he was closest to, a beautiful pink animal and also an avatar for him, of sex, of life itself on this bare rocky world. If this was what they were at sixty-five, and if the treatment did no more than hold them at this point, for even a few added years, or (the shock of it still) for decades? For decades? Well, it was astonishing. Absolutely too much to grasp, he had to stop trying or he would strip all the gears of his mind. But could it be? Could it really be? The aching desire of all true lovers through all the ages, to have a bit more time together, to be able to stretch out and live the love fully. . . Similar feeling seemed to be stirring Maya. She was in a great mood, she watched him from hooded eyes, with that come-hither half-smile he knew so well, one knee up and tucked in her armpit, not flaunting her sex at him but just

long it might last? They might watch a whole nation of descendants flourish, become patriarch and matriarch, a kind of mini Martian Adam and Eve! And Maya laughed at each declaration, her eyes vivacious and sparkling with affection, windows to a soul in a very, very good mood, watching him and soaking him up, he could feel the blotter tug of her gaze watching him and laughing delightedly at each new absurd hilarious phrase that burst out of him, and saying to him "Something like that, yes, something like that," and then hugging him hard. "Oh John," she said. "You know how to make me happy. You are the best man I ever had." She kissed him and he found that despite the sauna's heat it was going to be easy to shift the emphasis from agape to eros; but now the two were one, indistinguishable, a great mingled flood of love. "So you'll marry me and all?" he said as he locked the sauna door and they began to fall into it. "Something like that," she said, eyes flashing, face ablaze with an absolutely ravishing smile.

When you expect to live another two hundred years, you behave differently than when you expect to live only twenty.

This they proved almost immediately. John spent the winter there at Acheron, on the edge of the CO2 fog cap that still descended over the north pole every winter, studying areobotany with Marina Tokareva and her lab group. He did this on Sax's instruction, and because he felt in no hurry to leave. Sax seemed to have forgotten about the search to find out who the saboteurs were, which made John a little suspicious; in his spare time he still made efforts through Pauline, concentrating on the areas he had been working on before Acheron; travel records mostly, and then employment records of all the people that had traveled to the areas where the sabotages had taken place. Presumably there were a lot of people involved, so individual travel records might not tell him much. But everyone on Mars had been sent there by an organization, and by checking which organizations had sent people to the relevant places, he hoped to get some

their broad leaves, which would probably look as if they had tobacco leaf disease, were going to be able to absorb the baseline dose of UV radiation without damage to their purplish undersides. At first John thought the trees' size was excessive, but Marina pointed out that they would be capable of taking in great quantities of carbon dioxide, fixing the carbon and transpiring the oxygen back into the air. And they were going to be quite a sight, or so they supposed; the actual shoots of the competing test prototypes were only ten meters tall, and it would be twenty years before the winners of the competition reached their mature heights. And right now all the prototypes still died in Mars jars; atmospheric conditions would have to change considerably before they would survive outdoors. Marina's lab was getting ahead of the game.

But so was everyone else. This seemed to be a result of the treatment, it made sense on the face of it. Longer experiments. Longer (John groaned) investigations. Longer thoughts.

In many respects, however, nothing changed. John felt about the same as before, except it didn't take omegendorph to get an occasional buzz humming through him, as if he had recently finished swimming a couple of kilometers, or cross-country skied for an afternoon, or, yes, taken a dose of omegendorph. Which now would have been carrying coals to Newcastle. Because things glowed. When he took the crest walk, the whole visible world glowed: stilled bulldozers, a crane like a gallows, he could watch anything for minutes on end. Maya left for Hellas, and it didn't matter; their relations were back on the old rollercoaster ride, a lot of bickering and fits of temper on her part, but all that seemed unimportant, floating inside the glow, changing nothing in the way he felt toward her, or in the way she had, from time to time, turned on him that look of hers. He would see her in a few months, and talk to her on screen; meanwhile this was a separation he was not entirely unhappy to see.

It was a good winter. He learned a lot about areobotany and bioengineering, and in many of the evenings, after dinner, he would ask the Acheron people both individually and severally what they thought the eventual Martian society should be like, and how it should be run. At

six or seven kilocalories per gram of weight, and of course we take in a lot of calories to sustain that through our lives. Our output is harder to measure, because it's not a matter of predators feeding on us, as in the classic efficiency equations-it's more a matter of how many calories we create by our efforts, or send on to future generations, something like that. And most of that is very indirect, naturally, and it involves a lot of speculation and subjective judgement. If you don't go ahead and assign values to a number of non-physical things, then electricians and plumbers and reactor builders and other infrastructural workers would always rate as the most productive members of society, while artists and the like would be seen as contributing nothing at all."

"Sounds about right to me," John joked, but Vlad and Marina ignored him.

"Anyway that's a large part of what economics is-people arbitrarily, or as a matter of taste, assigning numerical values to non-numerical things. And then pretending that they haven't just made the numbers up, which they have. Economics is like astrology in that sense, except that economics serves to justify the current power structure, and so it has a lot of fervent believers among the powerful."

"Better just to concentrate on what we're doing here," Marina put in. "The basic equation is simple, efficiency merely equals the calories you put out, divided by the calories you take in, times one hundred to put it in the form of a percentage. In the classic sense of passing along calories to one's predator, ten percent was average, and twenty percent doing really well. Most predators at the tops of food chains did more like five percent."

"This is why tigers have ranges of hundreds of square kilometers," Vlad said. "Robber barons are not really very efficient."

"So tigers don't have predators not because they're so tough, but because it's not worth the effort," John said.

"Exactly!"

"The problem is in calculating the values," Marina said. "We have had to simply assign certain calorie-equivalent numerical values to all kinds of activities, and then go on from there."

all predators their efficiency is low. But here, you see-in this theoretical state of independence that you speak of-" she grinned at John's look of consternation- "you do, you have to admit that that is ultimately what you talk about all the time, John-well, there it should be the law that people are rewarded in proportion to their contribution to the system."

Dmitri, coming in the lab, said, "From each according to his capacities, to each according to his needs!"

"No, that's not the same," Vlad said. "What it means is, You get what you pay for!"

"But that's already true," John said. "How is this different from the economics that already exists?"

They all scoffed at once, Marina most persistently: " . . . there's all kinds of phantom work! Unreal values assigned to most of the jobs on Earth! The entire transnational executive class does nothing a computer couldn't do, and there are whole categories of parasitical jobs that add nothing to the system by an ecologic accounting. Advertising, stock brokerage, the whole apparatus for making money only from the manipulation of money-that is not only wasteful but corrupting, as all meaningful money values get distorted in such manipulation." She waved a hand in disgust.

"Well," Vlad said, "we can say that their efficiency is very low, and that they predate on the system without having any predators, so that they are either the top of the chain or parasitical, depending on how you define it. Advertising, money brokering, some types of manipulation of the law, some politics. . . ."

"But all of these are subjective judgements!" John exclaimed. "How have you actually assigned caloric values to such a variety of activities?"

"Well, we have done our best to calculate what they contribute back to the system in terms of well-being measured as a physical thing. What does the activity equal in terms of food, or water, or shelter, or clothing, or medical aid, or education, or free time? We've talked it over, and usually everyone at Acheron has offered a number, and we have taken the mean. Here, let me show you. . . ."

sun when it crossed in front of it, and Delmos about a minute, and a couple times a month they crossed at the same time, causing a shadow to be cast across the land, as if a film had got in your eye, or you had had a bad thought.

But this wasn't an eclipse; Olympus Mons was hidden from view, and the high southern horizon was a fuzzy bronze bar. "Look at that," he said to the others, and pointed. "A dust storm." They hadn't had a global dust storm in over ten years. John called up the weather satellite photos on his wristpad. The origin of the storm had been near the Thaumasia mohole, Senzeni Na. He called up Sax and found him blinking philosophically, stating his surprise in mild tones.

"Winds at the edge of the storm were up to six hundred and sixty kilometers an hour," Sax said. "A new planetary record. It looks like this is going to be a big one. I thought the cryptogamic soils in the storm start-up zones would have dampened them, or even stopped them. Obviously that model had something wrong with it."

"Okay, Sax, too bad about that, but it'll be okay, I gotta go now because it's rolling right down on us now and I want to watch."

"Have fun," Sax said deadpan before John clicked him off. Vlad and Ursula were scoffing at Sax's model; temperature gradients between biotically-defrosted soil and the remaining frosted areas would be greater than ever, and the winds between the two regions correspondingly fiercer; so that when they finally hit loose fines, off they would go. Totally obvious.

"Now that it's happened," John said. He laughed and moved down the greenhouse to watch the storm's approach by himself. Scientists could be so catty.

The wall of dust rolled down the long lava slopes of Olympus Mons's northern aureole. It had already halved the land visible since John first saw it, and now it approached like a giant breaking wave, a billowy chocolate milk wave ten thousand meters high, with a bronze filigree foaming up and off it, leaving great curved streamers in the pink sky above. "Wow!" John cried. "Here it comes! Here it comes!" Suddenly the crest of the Acheron fin seemed located a great distance above the long narrow canyons of the

wind settled into a smooth standing wave, and the dust rushed up past John's face; the pit of his stomach lifted, as if the greenhouse were suddenly dropping with violent speed. Certainly that's what it looked like; the ridge had caused a ferocious updraft. Stepping back, however, he saw the dust streaming overhead and then off to the north. On that side of the greenhouse he could see for a few kilometers, before the wind smashed into the ground again and cut off the view in continual explosions of dust. "Wow!"

His eyes were dry, and his mouth felt a bit caked. Lots of the fines were less than a micron across; was that a faint sheen of them, there already across the bamboo leaves? No. Only the weird light of the storm. But there would be dust on everything, eventually. No seal system could keep it out.

Vlad and Ursula were not completely confident of the greenhouse's ability to withstand the wind, and they encouraged everyone up there to go downstairs. On the way down John re-established contact with Sax. Sax's mouth was bunched into a tighter knot than usual. They would lose a lot of insolation with this storm, he said evenly. Equatorial surface temperatures had been averaging eighteen degrees higher than the baseline figures, but temperatures near Thaumasia were already down six degrees, and they would continue to plummet for the duration of the storm. And, he added with what seemed to John an almost masochistic completeness, the mohole thermals would loft the dust higher than ever before, so that it was all too possible that the storm might last for a long time.

"Buck up, Sax," John advised. "I think it'll be shorter than ever before. Don't be so pessimistic."

Later on, when the storm was going into its second m-year, Sax would remind John of this prediction with a little laugh.

###

Traveling during the storm was officially restricted to the trains and to certain heavily used double-transponder roads, but when it became obvious that it wasn't going to die back down that summer, John ignored the restrictions and resumed his wanderings. He made sure that his rover

seeming to be moving south. Then blank rushing tempests of dust would return again, flush against the windows. The rover rocked hard on its shock absorbers during the worst gusts, and the dust did indeed get into everything.

On the fourth day of his drive he turned straight south, and began to drive up the northwest slope of the Tharsis bulge. This was the great escarpment again, but here it was not a cliff, only a slope imperceptible in the storm's dark, lasting for more than a day, until he was high on the side of Tharsis, five vertical kilometers higher than he had been in Acheron.

He stopped at another mine, located near crater Pt (called Pete), located in the upper end of the Tantalus Fossae. Apparently the Tharsis bulge had initiated the great lava flood covering Alba Patera, and later bulging had then cracked the lava shield; these were the Tantalus canyons. Some of them had cracked over a platinoid-rich mafic igneous intrusion that the miners had named the Merensky Reeflets. The miners were real Azanians this time, but Azanians who called themselves Afrikaaners, and spoke Afrikaaner among themselves; white men who welcomed John with a heavy doses of God, volk, and trek. They had named the canyons they worked in Neuw Orange Free State and Neuw Pretoria. And they, like the miners at Bradbury Point, worked for Armscor. "Yes," the operations head said happily, with an accent like a New Zealander's. He had a heavily-jowled face, a ski-jump nose and a big crooked smile, and a very intense manner. "We've found iron, copper, silver, manganese, aluminum, gold, platinum, titanium, chromium, you name it. Sulfides, oxides, silicates, native metals, you name it. The Great Escarpment has them all." The mine had been running for about an m-year; it consisted of strip mines on the canyon floors, with a habitat half buried in the mesa between two of the largest canyons, looking like a clear eggshell, packed with a meat of green trees and orange tile roofs.

John spent several days with them, being sociable and asking questions. More than once, thinking of the Acheron group's eco-economics, he asked them how they were going to get their valuable but

himself, it was, he said to Maya one night on the wrist, like tossing a tear gas canister in the room. It even enabled him to wander into the mining operations center alone for most of an afternoon, linking Pauline to the records and recording everything that she could lift. Pauline noticed no unusual patterns in the operation. But she did flag an exchange of communications with the Armscor home office; the local group wanted a security unit of a hundred persons, and Singapore had agreed to it.

John whistled. "What about UNOMA?" Security was supposed to be entirely their purview, and they gave out approval for private security pretty routinely; but a hundred people? John instructed Pauline to look into the UNOMA dispatches on the subject, and left for dinner with the Afrikaaners.

Again the space elevator was declared a necessity. "They'll just pass us by if we don't have it, go straight out to the asteroids and not have any gravity well to worry about, eh?"

Despite the five hundred micrograms of omegandorph in his system, John was not in a happy mood. "Tell me," he said at one point, "do any women work here?"

They stared at him like fish. They were even worse than Moslems, really.

He left the next day and drove up to Pavonis, intent on looking into the space elevator notion.

###

Up the long slope of Tharsis. He never saw the steep, blood-colored cone of Ascræus Mons; it was lost in the dust along with everything else. Travel now consisted of life in a set of small rooms that bumped around a lot. He worked his way around Ascræus on its west flank, and then motored up onto the crest of Tharsis, between Ascræus and Pavonis; here the double-transponder road became an actual concrete ribbon under the wheels-concrete under a rush of dust, concrete that finally tilted up sharply, and led him straight up the northern slope of Pavonis Mons. It went on for so long that it began to feel like a slow blind takeoff into space.

The crater of Pavonis, as the Afrikaaners had reminded him, was amazingly equatorial; the round O of its caldera sat like a ball placed right

terraced near the bottom, the caldera had slumped often in earlier days, but always in nearly the same place. It was the only one of the great volcanoes to have been so regular; the other three had calderas that were like sets of overlapping circles, with each circle set at a different depth.

The new habitat, nameless at this point, had been built by UNOMA, but the equipment and personnel had been provided by the transnational Praxis, one of the biggest of them all. Currently the rooms that were finished were crowded with Praxis executives, or executives of some of the other transnationals who had subcontracts on the elevator project; among them were representatives of Amex, Oroco, Subarashii, and Mitsubishi. And all their efforts were being coordinated by Phyllis, who was now apparently Helmut Bronski's assistant in charge of the operation.

Helmut too was there, and after John had greeted him and Phyllis, and been introduced to some of the visiting consultants, he was led into a big high room with a window wall. Outside the window swirled clouds of dark orange dust dropping down into the caldera, so that it seemed that the room ascended, uncertainly, in a dim fluctuating light.

The room's only furnishing was a globe of Mars one meter in diameter, resting waist-high on a blue plastic stand. Extending from the globe, specifically from the little bump that represented Pavonis Mons, was a silver wire about five meters long. At the end of the thread was a small black dot. The globe was rotating on the stand at about one RPM, and the silver wire and its terminating black dot rotated with it, always remaining above Pavonis.

A group of about eight people ringed this display. "Everything is to scale," Phyllis said. "The areosynchronous satellite distance is 20,435 kilometers from the center of mass, and the equatorial radius is 3,386 kilometers, so the distance from the surface to the areosynchronous point is 17,049 kilometers; double that and add the radius, and you have 37,484 kilometers. We'll have a ballast rock at the far end, so the actual cable won't have to be quite as long. The diameter of the cable will be about ten meters, and will weight about six billion tons. The material for it will have been mined from its terminal ballast point, which will be an asteroid that

the terminal ballast rock.

"What about Phobos?" John asked.

"Phobos is way down there, of course. The cable will be vibrating to avoid it, in what the designers call a Clarke oscillation. It won't be a problem. Deimos will also have to be avoided by oscillation, but because its orbit is more inclined this won't be such a frequent problem."

"And when it's in position?" Helmut asked, his face bright with pleasure.

"A few hundred elevators at least will be attached to the cable, and loads will be lifted into orbit using a counterweight system. There will be lots of material to load down from Earth as usual, so energy requirements for lifts will be minimized. It will also be possible to use the cable's rotation as a slingshot; objects released from the ballast asteroid toward Earth will be using the power of Mars's rotation as their push, and will have an energy-free high-speed take-off. It's a clean, efficient, extraordinarily cheap method, both for lifting bulk into space and for accelerating it toward Earth. And given the recent discoveries of strategic metals, which are becoming ever more scarce on Earth, a cheap lift and push like this is literally invaluable. It creates the possibility of an exchange that wasn't economically viable before; it will be a critical component of the Martian economy, the keystone of its industry. And it won't be that expensive to build. Once a carbonaceous asteroid is pushed into the proper orbit, and a nuclear-powered robotic cable plant put to work on it, the plant will extrude cable like a spider spinning its thread. There will be very little to do but wait. The cable plant as designed will be able to produce over three thousand kilometers of cable a year-this means we need to start as soon as possible, but after production begins, it will only take ten or eleven years. And the wait will be well worth it."

John stared at Phyllis, impressed as always by her fervor. She was like a convert giving witness, a preacher in a pulpit, quietly and confidently triumphant. The miracle of the skyhook. Jack and the Beanstalk, the Ascension to Heaven; it definitely had an air of the miraculous to it. "Really, we don't have much choice," Phyllis was saying. "This gets us out of our gravity well, eliminating it as a physical and economic problem.

On and on she went, outlining every aspect of the plan, and then answering questions from the executives with her usual polished brilliance. She got a lot of laughs; she was flushed, bright-eyed, John could almost see the tongues of fire flickering from her mass of auburn hair, which in the storm light looked like a cap of jewels. The executives and project scientists glowed under her look; they were onto something big, and they knew it. Earth was seriously depleted in many of the metals they were finding on Mars. There were fortunes to be made, enormous fortunes. And someone who owned a piece of the bridge over which every ounce of metal had to pass would make an enormous fortune as well, probably the greatest fortune of all. No wonder Phyllis and the rest of them looked like they were in church.

Before dinner that evening John stood in his bathroom, and without looking at himself in the mirror took out two tabs of omegandorph and swallowed them. He was sick of Phyllis. But the drug made him feel a better; she was just another part of the game, after all; and when he sat down to dinner he was in an expansive mood. Okay, he thought, they have their gold mine of a beanstalk. But it wasn't clear that they would be able to keep it to themselves; highly unlikely in fact. So that their fat-cat complacency was a bit silly, as well as grating, and he laughed in the middle of one of their enthusiastic exchanges and said, "Don't you think it unlikely that an elevator like this will stay private property?"

"We don't intend for it to be private property," Phyllis said with her brilliant smile.

"But you expect to be paid for its construction. And then you expect concessions to be granted. You expect to make a profit from the venture, isn't that what venture capitalism is all about?"

"Well, of course," Phyllis said, looking offended that he had spoken of such things so explicitly. "Everyone on Mars will profit from it, that's its nature."

"And you'll skim a percentage of every percentage." Predators at the top of the chain. Or else parasites, up and down the length of it. . . . "How rich did the builders of the Golden Gate Bridge get, do you think? Were

scratch, on principles that make sense in scientific terms. There's only a limited carrying capacity here, and to create a sustainable society we've got to pay attention to that. You can't just lift raw materials from here to Earth-the colonial era is over, you have to remember that." He laughed again at the glinty stares being leveled on him; it was like gunsights had been implanted in their corneas.

And it only occurred to him later, back in his room and remembering those looks, that it probably had not been a very good idea to stick their noses in the situation so hard. The Amex man had even lifted his wrist to his mouth to take down a note, in a gesture obviously meant to be seen: This John Boone was bad news! he had whispered, eyes on John all the while; he had wanted John to see him. Well, another suspect then. But it took John a while to get to sleep that night.

###

He left Pavonis the next day, and headed east down Tharsis, intending to drive a full seven thousand kilometers to Hellas, to visit Maya. The journey was made strangely solitary by the great storm. He glimpsed the southern highlands in murky snatches only, through billowing sheets of sand, with the ever-shifting whistle of the wind as accompaniment. Maya was pleased he was coming to visit; he had never been to Hellas before, and a lot of people there were looking forward to meeting him. They had discovered a sizeable aquifer to the north of Low Point, so their plan was to pump water from that aquifer to the surface, and create a lake in the low point, a lake with a frozen surface which would be continuously subliming into the atmosphere, but which they would keep supplied from below. Sustained in that way it would both enrich the atmosphere, and serve as a reservoir and heat sink for cultivation, in a ring of domed farms built around the lake shore. Maya was very excited at the plans.

John's long journey toward her passed in a mesmerized state, as he watched crater after crater loom out of the clouds of dust. One evening he stopped at a Chinese settlement where they knew hardly a word of English, and lived in boxes like the trailer park; he and the settlers had to make use of an AI translation program which kept them both laughing for most of the

plain like a thick round pedestal, its furrowed sides a kilometer high. John drove up a switchbacking ramp road to the caravanserai on top.

Up there he found that the mesa was situated in a permanent standing wave in the dust storm, so that there was more sunlight leaking through the dark clouds here than anywhere else he had been, even on the rim of Pavonis. Visibility was almost as truncated as everywhere else, but everything was more brightly colored, the dawns purple and chocolate, the days a vivid cloudy rush of umbers and yellow, orange and rust, pierced by the occasional bronzed sunbeam.

It was a great spot, and the Sufis proved to be more hospitable than any of the Arab groups he had met so far. They had come up in one of the latest Arab groups, they told him, as a concession to religious factions in the Arab world back home; and as Sufis were numerous among Islamic scientists, there had been very few objections to sending them as a coherent group of their own. One of them, a small black man named Dhu el-Nun, said to him, "It's wonderful in this time of the seventy thousand veils that you, the great talib, has followed his tariqat here to visit us."

"Talib?" John said. "Tariqat?"

"A talib is a seeker. And the seeker's tariqat is his path, his special path you know, on the road to reality."

"I see!" John said, still surprised at the friendliness of their greeting.

Dhu led him from the garage to a low black building which stood in the center of a ring of rovers, looking dense with concentrated energy; a squat round thing like a model of the mesa itself, its windows rough clear crystals. Dhu identified the black rock of the building as stishovite, a high-density silicate created by the meteor's impact, when pressures of over a million kilograms per square centimeter had momentarily existed. The windows were made of lechatelierite, a kind of compressed glass also created by the impact.

Inside the building, a party of about twenty people greeted him, both men and women alike. The women were bare-headed and behaved just like the men, which again surprised John, and alerted him to the fact that things among the Sufis were different than they were among Arabs

I guess I haven't begun the first journey yet," John said. "I don't know anything."

They were pleased by this response, he could see. You can start, they told him, and poured him more coffee. You can always start. They were so encouraging and friendly compared to any of the Arabs John had met before that he opened up to them, and told them about his trip to Pavonis, and the plans for the great elevator cable. "No fancy in the world is all untrue," Dhu said. And when John mentioned his last meeting with Arabs, on Vastitas Borealis, and how Frank had been accompanying them, Dhu said cryptically, "It's the love of right lures men to wrong."

One of the women laughed and said, "Chalmers is your nafs."

"What's that?" John asked.

They were all laughing. Dhu, shaking his head, said "He is not your nafs. One's nafs is one's evil self, which some used to believe lived in one's chest."

"Like an organ or something?"

"Like an actual creature. Mohammed ibn 'Ulyan for instance reported that something like a young fox leaped out of his throat, and when he kicked it it only got bigger. That was his nafs."

"It is another name for your Shadow," the woman who had brought it up explained.

"Well," John said. "Maybe he is, then. Or maybe it's just that Frank's nafs gets kicked a lot." And they laughed with him at the thought.

Later that afternoon sunlight pierced the dust more strongly than usual, lighting the streaming clouds so that the caravanserai seemed to rest in the ventricle of a giant heart, with the gusts of the wind saying beat, beat, beat, beat. The Sufis called out to each other when they looked through the lechatelierite windows, and quickly they suited up to go out into this crimson world, into the wind, calling to Boone to accompany them. He grinned and suited up, surreptitiously swallowing a tab of omeg as he did so.

Once outside they walked the circumference of the ragged edge of the mesa, looking out into the clouds and down onto the shadowed plain

unearthly spins, arms outstretched, and when they touched down they pushed off and did it again, for turn after turn after turn. Whirling dervishes in the great storm, on a high round mesa that had been a crater floor in the Noachian. It looked so marvelous in the bloody pulsing glow of light that John stood up and started to spin with them. He wrecked their symmetries, he sometimes actually collided with other dancers; but no one seemed to mind. He found that it helped to jump slightly into the wind, to keep from being blown off balance. A hard gust would knock you flat. He laughed. Some of the dancers were chanting over the common band, the usual quarter-tone ululations, punctuated by shouts and harsh rhythmic breathing, and the phrase "Ana el-Haqq, ana el-Haqq"-I am God, one translated, I am God. A Sufi heresy. The dancing was meant to hypnotize you-there were other Moslem cults that did it with self-flagellation, John knew. Spinning was better; he danced, he joined the chant on the common band by punctuating it with his own rapid breath, and with grunts and babble; then without thinking about it he began to add to the flow of sound the names for Mars, muttering them in the rhythm of the chant as he understood it. "Al-Qahira, Ares, Auqakuh, Bahram. Harmakhis, Hrad, Huo Hsing, Kasei. Ma'adim, Maja, Mamers, Mangala. Nirgal, Shalbatanu, Simud and Tiu." He had memorized the list years ago, as a kind of party trick; now he was quite surprised to find what an excellent chant it made, how it spilled out of his mouth and helped stabilize his spinning. The other dancers were laughing at him, but in a good way, they sounded pleased. He felt drunk, his whole body was humming. He repeated the litany many times, then shifted to repeating the Arabic name, over and over: "Al-Qahira, Al-Qahira, Al-Qahira." And then, remembering what one of the translating voices had told him, "Ana el-Haqq, ana Al-Qahira. Ana el-Haqq, ana Al-Qahira." I am God, I am Mars, I am God. . . . The others quickly joined him in this chant, lifted it into a wild song, and in the flash of rotating faceplates he caught sight of their grinning faces. They were really good spinners; as they whirled their outstretched fingers cut the rush of red dust into arabesques, and now as they spun they tapped him with their fingertips, guiding him or even actively pushing his clumsy turns into the

world they were deviants of a kind, and with an ecumenical bent rare in Islam. And scientists too. So they were his way into Islam, perhaps, his tariqat; and their dervish ceremonies could perhaps be shifted into the areophany, as during his chant. He stood, reeling; all of a sudden he understood that one didn't have to invent it all from scratch, that it was a matter of making something new by synthesis of all that was good in what came before. "Love thrilled the chord of love in my lute. . . ." He was too dizzy. The others were laughing at him, supporting him. He talked to them in his usual way, hoping they would understand. "I feel sick. I think I'm going to throw up. But you must tell me why we can't leave all the sad terran baggage behind. Why we can't invent together a new religion. The worship of Al-Qahira, Mangala, Kasei!"

They laughed, and carried him on their shoulders back toward the shelter. "I'm serious," he said as the world spun. "I want you people to do it, I want your dancing to be in it, it's obvious you should be the ones to design this religion, you're doing it already." But vomiting in a helmet was dangerous, and they only laughed at him and hustled him into the crushed-stone habitat as quickly as they could. There as he threw up a woman held his head, saying in musical subcontinental English, "The King asked his wise men for some single thing that would make him happy when he was sad, but sad when he was happy. They consulted and came back with a ring engraved with the message 'This Too Will Pass.' "

"Straight into the recyclers," Boone said. He lay back spinning. It was kind of an awful feeling, when you were trying to lie still. "But what do you want here? Why are you on Mars? You have to tell me what you want here." They took him to the common room and set out cups, and a pot of aromatic tea. He still felt like he was spinning, and the dust rushing by the crystalline windows didn't help.

One of the old women around him picked up the pot and poured John's cup full. She put down the pot, gestured: "Now you fill mine." John did so, unsteadily, and then the pot went around the room. Each pourer filled someone else's cup.

hopedily with interest. You worked to be able to give more than you received. Now we think that this can be the basis for a reverent economics."

"It's just what Vlad and Ursula said!"

"Maybe so."

The tea helped. After a while his equilibrium returned. They talked about other things, the great storm, the great hard plinth they lived on. Late that night he asked if they had heard of the coyote, but they hadn't. They did know stories about a creature they called the "hidden one," the last survivor of an ancient race of Martians, a wizened thing who wandered the planet helping endangered wanderers, rovers, settlements. It had been spotted at the water station in Chasma Borealis last year, during an ice fall and subsequent power outage.

"It's not Big Man?" John asked.

"No, no. Big Man is big. The hidden one is like us. Its people were Big Man's subjects."

"I see."

But he didn't, not really. If Big Man stood for Mars itself, then maybe the story of the hidden one had been inspired by Hiroko. Impossible to say. He needed a folklorist, or a scholar of myths, someone who could tell him how stories were born; but he had only these Sufis, grinning and weird, story creatures themselves. His fellow citizens in this new land. He had to laugh. They laughed with him and took him off to bed. "We say a bedtime prayer from the Persian poet Rumi Jalaluddin," the old woman told him, and recited it:

" 'I died as mineral and became a plant,
I died as plant and rose to animal.
I died as animal and I was human.
Why should I fear? When was I less by dying?
Yet once more I shall die human,
To soar with angels blessed above.
And when I sacrifice my angel soul
I shall become what no mind ever conceived.' "

crossing the broken land south of Margaritifer Sinus. John would have to drive it again some other time to see any of it, for in the storm it was nothing but flying chocolate, pierced by momentary golden shafts of light. Near Bakhuisen Crater he stopped at a new settlement called Turner Wells; here they had tapped into an aquifer that was under such hydrostatic pressure at its lower end that they were going to generate power by running the artesian flow through a series of turbines. The water released would be poured into molds, frozen, and then hauled by robot to dry settlements all over the southern hemisphere. Mary Dunkel was working there, and she showed John around the wells, the power plant, and the ice reservoirs. "The exploratory drilling was actually scary as hell. When the drill hit the liquid part of the aquifer it was blasted back out of the well, and it was touch and go whether we were going to be able to control the gusher or not."

"What would have happened if you hadn't?"

"Well, I don't know. There's a lot of water down there. If it broke the rock around the well, it might have gone like the big outflow channels in Chryse."

"That big?"

"Who knows? It's possible."

"Wow."

"That's what I said! Now Ann has started an investigation into methods for determining aquifer pressures by the echoes they give back in the seismic tests. But there are people who would like to release an aquifer or two, see? They leave messages on the bulletin boards in the net. I wouldn't be surprised if Sax is among them. Big floods of water and ice, lots of sublimation into the air, why shouldn't he cheer?"

"But floods like those old ones would be as destructive to the landscape as dropping asteroids on it."

"Oh, more destructive! Those channels downslope from the chaoses were incredible outbreaks. The best terran analogy is the scablands in eastern Washington, have you heard of them? About eighteen thousand years ago there was a lake covering most of Montana, Lake Missoula they

Two hundred meters of bedrock?

"Yeah, well, it isn't just normal erosion. In floods that big the pressures fluctuate so much that you get exsolution of dissolved gases, you know, and when those bubbles collapse they produce incredible pressures. Hammering like that can break anything."

"So it would be worse than an asteroid strike."

"Sure. Unless you dropped a really big asteroid. But there are people who think we should be doing that too, right?"

"Are there?"

"You know there are. But the floods are better yet, if you want to do that kind of thing. If you could direct one of them into Hellas, for instance, you'd have a sea. And you might be able to refill it faster than the surface ice sublimed."

"Direct a flood like that?" John exclaimed.

"Well, yeah, that would be impossible. But if you found one in the right spot, you wouldn't have to direct it. You should check where Sax has sent the dowsing team lately, see what it looks like to you."

"But it would be forbidden by UNOMA for sure."

"Since when has that mattered to Sax?"

John laughed. "Oh, it matters now. They've given him too much for him to ignore them. They've tied him down with money and power."

"Maybe."

###

That night at 3:30 AM there was a small explosion in one of the well heads, and alarm bells ripped them from sleep and sent them stumbling through the tunnels half-naked, to be faced with a gusher that was shooting up into the night's flying dust, in a column of white water torn to shreds in the unsteady glare of hastily directed spotlights. The water was falling out of the dust clouds as chunks of ice, hail the size of bowling balls; wells downwind were being pummelled by these missiles, and the ice balls were already knee deep.

Given the discussion of the previous night John found himself quite alarmed by the sight, and he ran around until he found Mary. Through the

if there was anything they could do to secure the situation. Good work!
John said to Mary.

"I've read a lot about well capping since that first incident," Mary said, still short of breath. "And we had it all set up to go. But we never actually had the chance. To try it. Of course. So you never know."

John said, "Do your locks have recorders?"

"They do."

"Great."

John went to check them. He plugged Pauline into the station system, and asked questions, and scanned the answers as they appeared on his pad. No one had used the locks after the time-slip that night. He called the weather satellite overhead, and clicked into the radar and IR systems that Sax had given him the codes for, and scanned the area around Bakhuisen. No sign of any machines nearby, except some of the old windmill heaters. And the transponders showed that no one had been on the roads in the area since his arrival the previous day.

John sat heavily before Pauline, feeling sluggish and slow-witted. He couldn't think of any other checks to make; and it seemed from those he had, that no one had been out that night to do the damage. The explosion could have been arranged days before, perhaps; although it would be hard to hide the device, the wells being worked on daily. He got up slowly and went to find Mary, and with her help talked to the people who had last worked on that well, the day before. No sign of tampering then, all the way until eight PM. And after that everyone in the station had been at the John Boone party, the locks unused. So there really had been no chance.

He went back to his bed and thought about it. "Oh, by the way, Pauline; please check Sax's records, and give me a list of all the dowsing expeditions in the last year."

###

Continuing on his blind road to Hellas he ran into Nadia, who was overseeing the construction of a new kind of dome over Rabe Crater. It was the largest dome yet built, taking advantage of the thickening of the atmosphere and the lightening of construction materials, which created a

farm that would feed thirty thousand. Earthmoving robots the size of buildings hummed out of the murk of the dust, invisible even fifty meters away. These behemoths were working on their own, or by teleoperation, and the teleoperators probably had too little view of their surroundings to make nearby foot traffic entirely safe. John followed Nadia nervously as she strolled about, remembering how skittish the miners at Bradbury Point had been-and there they had been able to see what was happening! He had to laugh at Nadia's obliviousness. When the ground trembled underfoot, they just stopped and looked around, ready to leap away from any oncoming building-sized vehicles. It was quite a tour. Nadia railed against the dust, which was wrecking a lot of machinery. The great storm was now four months old, the longest in years; and it still showed no sign of ending. Temperatures had plummeted, people were eating canned and dried food, and an occasional salad or vegetable grown under artificial light. And dust was in everything. Even as they discussed it John could feel it caking his mouth, and his eyes were dry in their sockets. Headaches had become extremely common, as well as sinus trouble, sore throats, bronchitis, asthma, lung distress generally. Plus frequent cases of frostnip. And computers were becoming dangerously unreliable, a lot of hardware breakdown, a lot of AI neurosis or retardation. Middays inside Rabe were like living inside a brick, Nadia said, and sunsets looked like coal mine fires. She hated it.

John changed the subject. "What do you think of this space elevator?"

"Big."

"But the effect, Nadia. The effect."

"Who knows? You can never tell with a thing like that, can you."

"It'll make a strategic bottleneck, like the one Phyllis used to talk about when we were discussing who would build Phobos station. She'll have made her own bottleneck. That's a lot of power."

"That's what Arkady says, but I don't see why it can't be treated as a common resource, like a natural feature."

"You're an optimist."

treatment. Maya tells me it's a good thing to do together.

"I recommend it," John said with a grin.

"And the treatment?"

"Beats the alternative, right?"

She chuckled. Then the ground growled through their boots, and they stiffened and jerked their heads around, looking for shadows in the murk. A black bulk like a moving hill appeared to their right. They ran to the side, stumbling and hopping over cobbles and debris, John wondering if this were another attack, Nadia rapping out commands over the common band, cursing the teleoperators for not keeping track of them on the IR. "Watch your screens, you lazy bastards!"

The ground stopped trembling. The black leviathan no longer moved. They approached it warily. A Brobdignagian dump truck, on tracks. Built locally, by Utopia Planitia Machines; a robot built by robots, and big as an office block.

John stared up at it, feeling the sweat drip down his forehead. They were safe. His pulse slowed. "Monsters like this are all over the planet," he said to Nadia wonderingly. "Cutting, scraping, digging, filling, building. Pretty soon some of them will attach themselves to one of those two-kilometer asteroids, and build a power plant that will use the asteroid itself as fuel to drive it into Martian orbit, at which point other machines will land on it, and begin to transform the rock into a cable about thirty-seven thousand kilometers long! The size of it, Nadia! The size!"

"It's big all right."

"It's unimaginable, really. Something completely beyond human abilities as we were brought up to understand them. Teleoperation on a massive scale. A kind of spiritual waldo. Anything that can be imagined can be executed!" Slowly they walked around the giant black object before them: no more than a kind of dump truck, nothing compared to what the space elevator would be; and yet even this truck, he thought, was an amazing thing. "Muscle and brain have extended out through an armature of robotics that is so large and powerful that it's difficult to conceptualize it. Maybe impossible. That's probably part of your talent, and Sax's too- to

squabbling like those old gods on Olympus, because nowadays were just as powerful as they were."

"Or more," Nadia said.

###

He drove on into the Hellespontus Montes, the curved mountain range surrounding Hellas Basin. Somehow, one night when he was sleeping, his rover got off the transponder road. He woke up, and in breaks in the dust saw that he was in a narrow valley, walled with small cliffs that were cut by the typical fluting of ravines. It seemed likely that by staying on the valley floor he would cross the road again, so he headed on cross country. Then the valley floor was disrupted by shallow transverse grabens like empty canals, and Pauline kept having to stop and turn and try another branch in her route-finding algorithm, defeated by one gulch after another as they appeared out of the murk. When John got impatient and tried to take over, it only got worse. In the land of the blind, the autopilot is king.

But slowly he closed on the valley mouth, where the map showed the transponder road descending to a wider valley below. So that night he stopped, unworried, and sat in front of the TV and ate a meal. Mangalavid was showing the premiere performance of an aeolia built by a group in Noctis Labyrinthus. The aeolia turned out to be a small building, cut with apertures which whistled or hooted or squeaked, depending on the angle and strength of the wind hitting them. For the premiere the daily downslope wind in Noctis was augmented by some fierce katabatic gusts from the storm, and the music fluctuated like a composition, mournful, angry, dissonant or in sudden snatches harmonic: it seemed the work of a mind, an alien mind perhaps, but certainly something more than random chance. The almost aleatory aeolia, as a commentator said.

After that came news from Earth. The existence of the gerontological treatments had been leaked by a official in Geneva, and had flashed around the world in a day; and now there was a violent debate going on in the general assembly concerning the matter. Many delegates were demanding that the treatments be made a basic human right, guaranteed by the UN for all, with funding from the developed nations placed

he learned that one? He rubbed his jaw, turned on the common band.
"Hello? Anyone out there?"

"The Martians."

It was a man's voice. His English was accented, but John couldn't identify how.

"We want to talk," the voice said.

John stood and looked out the windshield. At night, in the storm, there was precious little to see. But he thought he could pick out shapes in the blackness, there below him.

"We just want to talk," the voice said.

If they had wanted to kill him they could have blown open the rover while he slept. Besides, he still couldn't quite believe that anyone wished him harm. There was no reason for it!

So he let them in.

There were five of them, all men. Their walkers were frayed, dirty, patched with material that had not been made for walkers. Their helmets were without identification, stripped of all paint. As they took off the helmets he saw that one of the men was Asian, and young; he looked about eighteen. The youth went forward and sat in the driver's seat, leaned over the steering wheel to look closer at the instrument array. Another got off his helmet; a short brown-skinned man, with a thin face and long dreadlocks. He sat on the padded bench across from John's bed, and waited for the other three men to get their helmets off too. When they did they crouched on their haunches, watching John attentively. He had never seen any of them before.

The thin-faced man said, "We want you to slow the rate of immigration." He was the one who had spoken outside; now his accent sounded Caribbean. He spoke in a low voice, almost in a whisper, and John found it very difficult not to emulate him.

"Or stop it," the young man in the driver's seat said.

"Shut up, Kasei." The thin-faced man never took his gaze from John's face. "There are too many people coming up. You know that. They're not Martian, and they don't care what happens here. They're going to

resolutely out the window.

John said, "Have you been sabotaging the moholes?"

"We want you to stop the immigration."

"I want you to stop the sabotage. It's just bringing more people here. Police."

The man eyed him. "What makes you think we can contact the saboteurs?"

"Find them. Break in on them at night."

The man smiled. "Out of sight, out of mind."

"Not necessarily."

They had to be with Hiroko. Occam's razor. There couldn't be more than one hidden group. Or maybe there could. John felt light-headed, and wondered if they were doctoring the air. Releasing aerosol drugs. He definitely felt strange, it was all surreal, dreamy; the wind buffeted the rover, sent a sudden burst of aeolian music coursing by, a weird drawn-out hoot. His thoughts were slow and ponderous, and he felt the edge of a yawn. That's it, he thought. I'm still trying to wake from a dream.

"Why do you hide?" he heard himself say.

"We're building Mars. Just like you. We're on your side."

"You ought to help, then." He tried to think. "What about the space elevator?"

"We don't care about it." The kid snickered. "That isn't what matters. It's people that matter."

"The elevator will bring a lot more people."

The man considered that. "Slow the immigration, and it can't even be built."

Another long silence, punctuated by the wind's eerie commentary. Can't even be built? Did they think people would build it? Or maybe they meant the money.

"I'll look into it," John said. The kid turned and stared at him, and John raised a hand to forestall him. "I'll do what I can." His hand stood before him, a huge pink thing. "That's all I can say. If I promised results, it would be lying. I know what you mean. I'll do what I can." He thought about it

When he came to they were gone. He had a headache. He fell back onto the bed, into an uneasy sleep. The dream about Frank made an improbable return, and John told him about the visitation. "You're a fool," Frank said. "You don't understand."

When he woke again it was morning, swirling a dim burnt umber outside the windshield. The winds had appeared to be lessening in the last month, but it was hard to be sure. Shapes in the dust clouds appeared briefly and then fell back into chaos, in little sensory deprivation hallucinations. It really was sensory deprivation, this storm; and getting very claustrophobic indeed. He ate some omeg and suited up and went outside and walked around, breathing talcum and bending over to follow the tracks of his visitors. They crossed bedrock and disappeared. A difficult rendezvous, he would have thought; a lost rover at night, how had they found it?

But if they had been tracking him. . . .

Back inside he called up the satellites. Radar and IR got nothing but his rover. Even walkers would have shown on the IR; so presumably they had a refuge nearby. Easy to hide in mountains like these. He called up his Hiroko map, and drew a rough circle around his location, bulging it north and south in the mountains. He had several circles on the Hiroko map by now, but none of them had been searched by ground crews with any thoroughness, and probably they never would be, as most of them were in chaotic terrain, ravaged land the size of Wyoming or Texas. "It's a big world," he muttered.

He wandered around the inside of the car, looking at the floor. Then he remembered the last thing he had done. He looked under his fingernails; a little skin matter was stuck there, yes. He got a sample dish from the little autoclave, and carefully scraped what was there onto the dish. Genome identification was far beyond the rover's capabilities, but any big lab ought to be able to identify the youth, if his genome was on record. If not, that too would be useful information. And maybe, John wasn't sure, Ursula and Vlad could identify him by parentage.

###

talk with the rest of the lake station occupants. Sax assured the crowd that atmospheric, surface, and permafrost microbacteria were growing at a rate that was a significant fraction of their theoretical maximums-about two percent, to be precise-and that they were going to have to be considering the problems of outdoor cultivation within a few decades. Applause at this announcement was non-existent, because everyone there was absorbed by horrible problems engendered by the Great Storm, which they seemed to think had begun as a result of a miscalculation of Sax's. Surface insolation was still twenty-five percent normal, as one of them waspishly pointed out, and the storm was showing no signs of ending. Temperatures had dropped, and tempers were rising. All the new arrivals had never seen more than a few meters around them, and psychological problems ranging from ennui to catatonia were pandemic.

Sax dismissed all that with a mild shrug. "It's the last global storm," he said. "It will go down in history as some kind of heroic age. Enjoy it while it lasts."

This was poorly received. Sax, however, did not notice.

A few days later, Ann and Simon drove into the settlement with their boy Peter, who was now three. He had been, so far as they could tell, the thirty-third child born on Mars; the colonies established after the first hundred had been fairly prolific. John played with the boy on the floor as he and Ann and Simon caught up on news, and exchanged some of the thousand and one tales of the Great Storm. It seemed to John that Ann ought to be enjoying the storm and the horrendous knock it had put on the terraforming process, like some kind of planetary allergic response, the temperatures plummeting below the baseline, the reckless experimenters struggling with their puny clogged machines. . . . But she was not amused. Irritated as usual, in fact. "A dowsing team drilled into a volcanic vent in Daedalia and came up with a sample containing unicellular microorganisms significantly different from the cyanobacteria you released in the north. And the vent was pretty nearly encased in bedrock, and very far from any biotic release sites. They sent samples of the stuff up to Acheron for analysis, and Vlad studied it and declared that it looked like a mutant strain of one of

away in an instant.

"Probably," Ann said. ("Probabry.") "Except what if there's a common source, the space spores theory, for instance, or ejecta blasted from one planet to another with microorganisms buried in its rock?"

"That's not too likely, is it?"

"We don't know. We'll never know, now."

John had a hard time sharing her concern. "They might have come from the Viking landers for all we know," he said. "There's never been a very effective effort to sterilize our explorations here, that's just the way it is. Meanwhile we've got more pressing problems." Such as a global dust storm longer than the longest one ever recorded, or an influx of immigrants whose commitment to Mars was as minimal as their housing, or an upcoming treaty revision that no one could agree on, or a terraforming effort that a lot of people hated. Or a home planet going critical. Or an attempt (or two) to do one John Boone some harm.

"Yeah yeah," Ann said. "I know. But all that's politics, we'll never get away from that. This was science, a question I wanted answered. And now I can't. Nobody can."

John shrugged. "We'll never answer that one, Ann. No matter what. That was one of those questions that was fated always to remain unanswered. Didn't you know that?"

"Probabwy tewwan."

###

A few days after that, a rocket landed on the little lake station spaceport pad, and a small group of Terrans emerged out of the dust, still bouncing around as they walked. Investigative agents, they said, here on UNOMA authority, to look into sabotage and related incidents. There were ten of them in all, eight clean-cut young men right out of the vids, and two attractive young women. Most had been assigned from the American FBI. Their leader, a tall brown-haired man named Sam Houston, requested an interview with Boone; John agreed politely.

When they met after breakfast the next morning-six of the agents there, including both women-he meekly answered every question without

and sent back to Earth. John, his mind wandering, wondered if that would be true of all Terrans. After all what other sources of information did they have?

At the end of the interview, one of them named Chang asked him if there was anything else he wanted to say. John, who had omitted an account of his midnight visit from the coyote, among many other things, said "I can't think of anything!"

Chang nodded, and then Sam Houston said, "We'd appreciate it if you'd give us access to your AI on these matters," he said.

"I'm sorry," John said, looking apologetic. "I don't give access to my AI."

"You have a destruct lock on it?" Houston said, looking surprised.

"No. I just don't do it. Those are my private records."

John stared the man in the eye, watched him squirm under the gaze of his associates.

"We, um, we can get a warrant from UNOMA, if you like."

"I doubt you can, actually. And even if you do I won't let you in."

John smiled at him, almost laughed. Another moment where being the First Man On Mars was useful. There was nothing they could do to him without causing far more trouble than it was worth. He stood up, surveyed the little gang with as much easy arrogance as he could muster, which was quite a lot. "Let me know if there's anything else I can do for you."

He left the room. "Pauline, click into the building comm center and copy anything you can that they send out." He called Helmut, remembering that his own calls would be opened as well; he kept his questions brief, as if just checking credentials. Yes, a team had been sent out by UNOMA. They were part of a task force, assembled in the last six months to deal with problems.

Police on Mars, then, as well as a detective. Well, it was to be expected. But it was a nuisance nevertheless. He couldn't do much with them hanging around watching him, suspicious because he hadn't given them access to Pauline. And really there wasn't that much to do in Hellas anyway. There had been no incidents of sabotage there, and it seemed unlikely that any would occur now. Maya was unsympathetic, she didn't

and in the end John gave up. After that he spent a couple of days thinking it over. He went down to the station's labs, and had the sample of skin taken from under his fingernails cultured, cloned, and read. No one with that genome was in the planetary records, so he sent the information to Acheron requesting an analysis and any information they could give. Ursula sent their results back coded, with a single word added at the end. Congratulations.

He read the message again, swore out loud. He went out for a walk, alternately laughing and swearing. "Damn you, Hiroko! Damn you to hell! Get out of your hole and help us! Ah, ha ha ha! You bitch! I'm sick of this Persephone shit!"

Even the walktubes were oppressive at that moment, and he went to the garage and suited up, and went out the lock for a walk outside, the first in many days. He was out at the end of the northern arm of the town, on a smooth desert floor. He wandered around, staying within the fluctuating column of dust-free air that every city created, thinking the situation over as he surveyed the city. Hellas was going to be much less impressive than Burroughs, or Acheron, or Echus, or even Senzeni Na; located at the low point of the basin, it had no heights to build on, no prospect. Although the whipping dust made it a poor time to judge that. The town had been built in a crescent which would eventually become the shoreline of the new lake; that might look nice when it happened-a waterfront-but meanwhile it was as featureless as Underhill, with all the latest in power plant and service apparatus, intake vents, cables, tunnels like giant sloughed snakeskins . . . the old scientific station look, no esthetics involved. Well, that was fine. They couldn't put every town on a mountaintop.

Two people passed him, their faceplates polarized. Odd, he thought, it being so gloomy in the storm. Then they leaped on him, knocked him down. He shoved off the sand with a wild John Carter leap and threw his fists around him, but to his surprise they were running off into the clouds of dust whipping by. He staggered, stared after them. They disappeared behind the veils of dust. His blood jolted through him; then he felt his shoulders burn. He reached up and back; they had cut his walker open.

pushed the open button and nothing happened. It was easy to lock a lock's outer door, just leave the inner one open. His lungs burned, he needed a breath. He ran around the garage to the walktube that connected it to habitat proper, reached it, stared in through the layers of plastic. No one in sight. He took his hand away from the rip on his shoulder and as quickly as he could opened the box on his left forearm and took out the little drill, turned it on and plunged it into the plastic, which gave without breaking and gathered up around the spinning bit, until the drill almost broke his elbow; he poked wildly with it and finally got the plastic to tear, then ripped downward, widening the hole until he could dive through it helmet first. When he was inside to the waist he held still, using his body as a rough plug for the hole. He unclipped his helmet and ripped it off his head and gasped for breath as if coming up from a long dive, out in out in out in. Get that CO2 out of the blood. His shoulders and neck were numb. Down at the garage an alarm bell was ringing.

After a twenty second compressed burst of thought, he yanked his legs through the hole and ran down the quickly depressurizing tube toward the habitat, away from the garage. Happily the door there opened on command. Once inside he jumped in an elevator and dropped to the third floor below the ground, where he was staying in one of the guest suites. He let the elevator door open and looked out. No one in sight. He hustled down to his room. Inside he stripped off the walker and stashed it and the helmet in his closet. In the bathroom he winced at the sight of his whitened shoulders and upper back; a really horrible case of frostnip. He took some oral painkiller and a triple dose of omegandorph, put on a shirt with a collar, pants, shoes. He combed his hair, composed himself. The face in the mirror looked glassy-eyed and distracted, almost stunned; he threw his face through the most violent contortions, slapped it, resettled his expression, started breathing in a deep pattern. The drugs began to kick in, and his reflection looked a little better.

He went out into the hall and walked to the big trench wall concourse, which extended downward three more stories. He walked along the railing

"We know you've been working on this for Dr. Russell. We thought you might like to be informed."

"Oh, I see. Well, let's go have a look then."

And then it was a matter of going through the paces, for nearly two hours, his shoulders burning like fire the whole time. Houston and Chang and the other investigators spoke to him as if in confidence, and anxious for his input; but their gazes were coolly evaluative. John returned them with a little smile.

"Why now, I wonder?" Houston said at one point.

"Maybe someone doesn't like you being here," John said.

Only when the whole charade was finished did he have time to think about why he wanted to keep them from finding out about the attack. No doubt it would have drawn more investigators up, and that was bad; and certainly it would have become the top news story all over Mars and Earth, tossing him back into maximum fishbowl. And he was sick of the fishbowl.

But there was something more than that, that he couldn't quite pin. The subconscious detective. He snorted with disgust. To distract himself from the pain he stalked around from dining hall to dining hall, hoping to catch some expression of poorly-concealed surprise when he walked into each room. Back from the dead! Which one of you murdered me! And once or twice he saw someone flinch from his roving gaze. But the fact was, he thought dourly, many people flinched when he looked at them. As if avoiding the gaze of a freak, or a condemned man. He had never felt his fame in quite that way before, and it made him angry.

The painkillers were wearing off, and he returned early to his rooms. His door was open. When he rushed in he found two of the UNOMA investigators inside. "What are you doing!" he cried angrily.

"Just looking out for you," one of them said smoothly. They glanced at each other. "Wouldn't want someone to try something."

"Like breaking and entering?" Boone said, standing in the doorway and leaning against it.

"Part of the job, sir. Sorry we've upset you." They shuffled nervously, trapped in his room.

believe you are not above the law-

Boone jerked forward so that Houston had to flinch to avoid their bumping noses. "You aren't the law," he said. He unfolded his arms and poked Houston in the chest, driving him back further down the hall. Now Houston was losing his temper, and Boone laughed at him. "What are you going to do to me, officer? Arrest me? Threaten me? Give me something good to include in my next report on Eurovid? Would you like that? Would you like me to show the world how John Boone was harrassed by some tin-god tin-badge functionary, who came to Mars thinking he was a sherriff in the wild west?" He remembered his opinion that anyone who spoke of themselves in the third person was a self-declared idiot, and laughed and said "John Boone doesn't like that kind of thing! No he doesn't!"

The other two had taken the opportunity to slip out of his room, and were now watching closely. Houston's face was the color of Ascræus Mons, and his teeth were revealed. "No one's above the law," he grated. "There are criminal acts occurring here, very dangerous ones, and quite a few of them happen when you're around."

"Like breaking and entering."

"If we determine that we need to check your quarters, or your records, to pursue our investigation, than we're going to do that. We have that authority."

"I say you don't," John said arrogantly, and snapped his fingers in the man's face.

"We are going to search your rooms," Houston said, articulating each word very carefully.

"Get away," Boone said contemptuously, and jerked at the other two and waved them back. He laughed, lip curled with scorn: "That's right, go! Get out of here, you incompetents-go back and read the regs on search and seizure!"

He went in his room and closed the door behind him.

He paused. It sounded like they were leaving, but either way he had to act like he didn't care. He laughed, and went to the bathroom and took some more painkillers.

was the basic, the fundamental fact. It was important to find out who the attackers were. And so on. The painkillers were strong, and the omegandorph was wearing off. It was getting hard to think. It was going to be a problem disposing of the walker; the helmet in particular was a big bulky thing. But now he was into it, and there was no graceful way out. He laughed; he knew he would think of something eventually.

He wanted to talk to Arkady. A call determined that Arkady had finished the gerontological treatment in Acheron with Nadia, however, and had gone up to Phobos. John had still never visited the fast little moon. "Why don't you come on up and see it?" Arkady said over the phone. "Better to talk in person, yes?"

"Okay."

He hadn't been in space since the landing from the Ares twenty-three years before, and the familiar sensations of acceleration and weightlessness brought on an unexpected bout of nausea. He told Arkady about it as they docked with Phobos, and Arkady said, "It always used to happen to me, until I started drinking vodka right before takeoff." He had a long physiological explanation for this, but the details began to pull John back over the edge and he cut him off. Arkady laughed; the gerontological treatment had given him its usual post-operative lift, and he had been a happy man to begin with; he didn't look like he would be sick again for a thousand years.

Stickney turned out to be a bustling little town, the crater's concrete dome lined with the latest heavy-duty radiation proofing, and the floor of the crater terraced in concentric rings down to a bottom plaza. The rings alternated between parks and two-storied buildings with gardens on their roofs. There were nets in the air for people who lost control of their leaps across the city, or took off by accident; escape velocity was only fifty kilometers per hour, so it was almost possible to run right off the moon. Just under the dome foundation John spotted a small version of the exterior

functional tubes, but the interior rooms and some of the big galleries had been built according to Arkady's socio-architectural theories, and he showed John around some of these: circular hallways, mixed work and recreation areas, terracing, etched metallic walls, all features that had become standard during Mars's crater-oriented phase of construction, but of which Arkady was still proud.

Three of the little surface craters on the side opposite to Stickney had been domed with glass and filled with villages which had a view of the planet rushing beneath them-views never available from Stickney, as Phobos's long axis was permanently aligned toward Mars, with the big crater always pointed away. Arkady and John stood in Semenov, looking up through the dome at Mars, which filled half the sky and was shrouded by its dust clouds, all its features obscured. "The Great Storm," Arkady said. "Sax must be going mad."

"No," John said. "A thing of the moment, he says. A glitch."

Arkady hooted. Already the two of them had fallen back into their old easy camaraderie, the feeling that they were equals, brothers from way back. Arkady was the same as ever, laughing, joking, a great kidder, ideas and opinions flooding out of him, confident in a way that John enjoyed immensely, even now, when he was sure many of Arkady's ideas were wrong, and even dangerous.

"Sax is probably right, in fact," Arkady said. "If those aging treatments work, and we are living decades longer than previously, it will certainly cause a social revolution. Shortness of life was a primary force in the permanence of institutions, strange though it is to say it. But it is so much easier to hold onto whatever short-term survival scheme you have, rather than risking it all on a new plan that might not work-no matter how destructive your short-term plan might be for the following generations. Let them deal with it, you know. And really, to give them their due, by the time people learned the system they were old and dying, and for the next generation it was all there, massive and entrenched and having to be learned all over again. But look, if you learn it, and then stare at it for fifty more years, you will eventually be saying, Why not make this more

Arkady cackled. "Still my same John Boone! I love it. Look here, my friend, I will tell you why these things are happening, and then you can work at it systematically, and perhaps see more. Ah, here's the subway to Stickney-come on, I want to show you the infinity vault, it's really a nice piece of work." He led John to the little subway car, and they floated down a tunnel to near the center of Phobos, where the car stopped and they got out. They pushed across the narrow room, and pulled themselves down a hall; John noted that his body had adjusted to the weightlessness, that he could float and keep his trim again. Arkady led him into an expansive open gallery, which on first glance appeared to be too large to be contained inside of Phobos: floor, wall and ceiling were paneled in faceted mirrors, and each round slab of polished magnesium had been angled so that anyone in its microgravity space was reflected in thousands of infinite regresses.

They touched down on the floor and hooked their toes through rings, floating like sea bottom plants in a shifting crowd of Arkadys and Johns. "You see, John, the economic basis of life on Mars is now changing," Arkady said. "No, don't you dare scoff! So far we have not been living in a money economy, that's the way scientific stations are. It's like winning a prize that frees you from the economic wheel. We won that prize, and so did a lot of others, and we've all been here for years now, living that way. But now more people are flooding onto Mars, thousands of them! And many of them plan to work here, make some money, and return to Earth. They work for the transnationals that have gotten UNOMA concessions. The letter of the Mars treaty is being kept because supposedly UNOMA is in charge of it all, but the spirit of the treaty is being broken left and right, by the UN itself."

John was nodding. "Yes, I've seen that. Helmut told me about it right to my face."

"Helmut is a snail. But listen, when the treaty renewal comes up, they will change the letter of the law to match the new spirit. Or even give themselves license to do more. It's the discovery of strategic metals, and

the rest. And quite a few of these new countries are becoming treaty members specifically with the intent to break the treaty at renewal time. They want to open up Mars to individual governments, outside UN control. And the transnationals are using flag of convenience countries like Singapore and the Seychelles and Moldavia to try to open Mars to private settlement, ruled by corporations."

"The renewal is still a few years off," John said.

A million Arkadys rolled their eyes. "It's happening now. Not just in talk, but in what's happening day-to-day down there. When we first arrived, and for twenty years after that, Mars was like Antarctica but even purer. We were outside the world, we didn't even own things-some clothes, a lectern, and that was it! Now you know what I think, John. This arrangement resembles the prehistoric way to live, and it therefore feels right to us, because our brains recognize it from three millions of years practicing it. In essence our brains grew to their current configuration in response to the realities of that life. So as a result people grow powerfully attached to that kind of life, when they get the chance to live it. It allows you to concentrate your attention on the real work, which means everything that is done to stay alive, or make things, or satisfy one's curiosity, or play. That is utopia, John, especially for primitives and scientists, which is to say everybody. So a scientific research station is actually a little model of prehistoric utopia, carved out of the transnational money economy by clever primates who want to live well."

"You'd think everyone would join," John said.

"Yes, and they might, but it isn't being offered to them. And that means it wasn't a true utopia. We clever primate scientists were willing to carve out islands for ourselves, rather than work to create such conditions for everyone. And so in reality, the islands are part of the transnational order. They are paid for, they are never truly free, there is never a case of truly pure research. Because the people who pay for the scientist islands will eventually want a return on their investment. And now we are entering that time. A return is being demanded for our island. We were not doing pure research, you see, but applied research. And with the discovery of

human time, a lot of it. And those humans have to eat and so on. And so someone is providing for them, for us, because we have not bothered to set up a life where we provide for ourselves."

John frowned. "Well, in the beginning we had to have the help. That was billions of dollars of equipment flown up here. Lots of work time, like you say."

"Yes, it's true. But once we arrived we could have focused all our efforts on making ourselves self-sufficient and independent, and then paid them back and been done with them. But we didn't, and now the loan sharks are here. Look, back in the beginning, if someone were to ask us who made more money, you or me, it would have been impossible to say, right?"

"Right."

"A meaningless question. But now you ask, and we have to confer. Do you consult for anybody?"

"Nobody."

"Me neither. But Phyllis consults for Amex, and Praxis, and Armscor. And Frank consults for Honeywell-Messerschmidt, and GE, and Boeing, and Subarashii. And so on. They are richer than us. And in this system, richer is more powerful."

We'll just see about that, John thought. But he didn't want to make Arkady laugh again, so he didn't say it.

"And it is happening everywhere on Mars," Arkady said. Around them clouds of Arkadys waved their arms, looking like a Tibetan mandala of red-haired demons. "And naturally there are people who notice what's going on. Or I tell them. And this is what you must understand, John; there are people who will fight to keep things the way they were. There are people who loved the feel of life as a scientist primitive, so much that they will refuse to give it up without a fight."

"So the sabotages. . . ."

"Yes! Perhaps some of them are done by these people. It is counterproductive, I think, but they don't agree. Mostly the sabotage is done by people who want to keep Mars the way it was before we arrived. I am not one of those. But I am one of those who will fight to keep Mars

something much more radical to stop these people, John. Direct action-yes, don't you look so unbelieving! Seizure of some property, or of the communication system-the institution of our own set of laws, backed by everyone here, out in the streets-yes, John, yes! It will come to that, because there are guns under the table. Mass demonstration and insurrection is the only thing that will beat them, history shows this."

A million Arkadys clustered around John, looking graver than any Arkady he could ever remember seeing-so grave that the blossoming rows of John's own face exhibited a regressive expression of slack-jawed concern. He pulled his mouth shut. "I'd like to try my way first," he said.

Which made all the Arkadys laugh. John gave him a playful shove on the arm and Arkady went to the floor, then pushed off and tackled him. They wrestled while they could keep contact and then flew away to opposite sides of the chamber; in the mirrors, millions of them flew away into infinity.

After that they went back to the subway, and to dinner in Semenov. As they ate they looked up at the surface of Mars, swirled like a gas giant. Suddenly it looked to John like a great orange cell, or embryo, or egg. Chromosomes whipping about under a mottled orange shell. A new creature waiting to be born, genetically engineered for sure; and they were the engineers, still working on what kind of creature it would be. They were all trying to clip the genes they wanted (their own) onto plasmids and insert them into the planet's DNA spirals, to get the expressions they wanted from the new chimerical beast. Yes. And John liked much of what Arkady wanted to put into it. But he had his own ideas as well. They would see who managed to create more of the genome in the end.

He glanced at Arkady, who was also looking up at the sky-filling planet, with the same grave expression that had been on his face in the hall of mirrors. It was a look that had been impressed on John very accurately and powerfully, he found, but in a weird multiple fly's-vision format.

###

John descended back into the murk of the Great Storm, and down in the dim blustery sandswept days he saw things he hadn't seen before. That

shines. He stared in the dustclouds after these visions, but they were always gone like hallucinations, half-seen and then disappeared. As he passed into the tattered zone of clear air directly downwind from the mohole, he noticed that the Sabishiians were taking the rock hauled out of the great shaft to this area and arranging it into curving mounds-a pattern-from space it would look like, what, a dragon? And then he arrived at the garage and was greeted by a group of them, barefoot and long-haired, in frayed tan jumpers or sumo-wrestler jock straps: wizened old Japanese Martian sages, who talked about the kami centers in the region, and how their deepest sense of on had long ago shifted from the emperor to the planet. They showed him their labs, where they were working on areobotany and radiation-proofed clothing materials. They had also done extensive work on aquifer location, and climatology in the equatorial belt. Listening to them it seemed to John that they just had to be in touch with Hiroko, it didn't make sense that they weren't. But they shrugged when he asked about her. John went to work drawing them out, establishing the atmosphere of trust that he was so often able to generate in old-timers, the sense that they went back a long way together, into their own Noachian. A couple of days of asking questions, of learning the town, of showing that he was "a man who knew giri", and slowly they began to open up, telling him in a quiet but blunt way that they did not like the sudden growth of Burroughs, nor the mohole next to them, nor the population increase in general, nor the new pressures put on them by the Japanese government, to survey the Great Escarpment and "find gold." "We refuse," said Nanao Nakayama, a wrinkled old man with scraggly white whiskers and turquoise earrings, and long white hair in a pony tail. "They cannot make us."

"And if they try?" John asked.

"They will fail." And his easy assurance caught John's attention; and he remembered the conversation with Arkady among the mirrors.

So some of the things he now saw were the result of paying attention in a new way, of asking new questions. But others were the result of Arkady sending word down through his network of friends and acquaintances, to identify themselves to John and show him around. Thus when John

had identified two workers there as absent without explanation from their jobs, on the day the truck had fallen on him. They day after he arrived he interviewed them, but they proved to have plausible explanations for their absence from the net; they had been out climbing. But after he had apologized for taking their time, and started back to his room, three other mohole technicians introduced themselves as friends of Arkady's. John greeted them enthusiastically, glad that something would come of the trip; and in the end a group of eight took him in a rover to a canyon paralleling the mohole's canyon. They drove down through the obscuring dust to a habitat dug into an overhanging canyon wall; it was invisible to satellites, its heat was released from a number of dispersed small vents which from space would look like Sax's old windmill heaters. "We figure that's how Hiroko's group has done it," one of his guides told him. Her name was Marian, and she had a long beak of a nose and eyes that were set too close together, so that her gaze was very intent.

"Do you know where Hiroko is?" John asked.

"No, but we think they're in the chaos."

The universal response. He asked them about the cliff dwelling. It had been built, Marian told him, with equipment from Senzeni Na. It was currently uninhabited, but ready if needed.

"Needed for what?" John said as he walked around the little dark rooms of the place.

Marian stared at him. "For the revolution, of course."

"The revolution!"

John had very little to say on the drive back. Marian and her companions sensed his shock, and it made them uneasy too; perhaps they were concluding that Arkady had made a mistake in asking them to show John their habitat. "There are a lot of these being prepared," Marian said defensively. Hiroko had given them the idea, and Arkady thought they might come in handy. She and her companions began ticking them off on their fingers: a whole stockpile of air and ice mining equipment, buried in a dry ice tunnel at one of the south polar cap processing stations; a wellhole tapping the big aquifer under Kasei Vallis; scattered greenhouse labs

sovereign state—it's all just a false analogy!

"Why do you say that?" Marian demanded. "What's different?"

"Well for one thing, we're not living on land that can sustain us. And for another, we don't have the means to revolt successfully!"

"I disagree with both those points. You should talk to Arkady more about that."

"I'll try. Anyway I think there's a better way of doing it than all this sneaking around stealing equipment, something more direct. We simply tell UNOMA what the new Mars treaty is going to say."

His companions shook their heads scornfully.

"We can talk all we want," Marian said, "but that's not going to change what they do."

"Why not? Do you think they can just ignore the people who are living here? They may have continuous shuttles now, but we're still eighty million kilometers away from them, and we're here and they're not. It may not be North America in the 1760s, but we do have some of the same advantages; we're at a great distance, and we're in possession. The important thing is not to fall into their way of thinking, into all the same old violent mistakes!"

And so he argued against revolution, nationalism, religion, economics—against every mode of Terran thought that he could think of, all mashed together in his usual style. "Revolution never even worked on Earth, not really. And here it's all outmoded. We should be inventing a new program, just like Arkady says, including the ways to take control of our fate. With you all living a fantasy of the past you're leading us right into the repression you're complaining about! We need a new Martian way, a new Martian philosophy, economics, religion!"

They asked him just what these new Martian modes of thought might be, and he raised his hands. "How can I say? When they've never existed it's hard to talk about them, hard to imagine them, because we don't have the images. That's always the problem when you try to make something new, and believe me I know, because I've been trying. But I think I can tell you it will feel like; it will feel like the first years here, when we were a group and we all worked together. When there was no purpose in life except to

There they argued passionately, through the time-slip and long into the night; and as they argued a certain elation filled John, because he could see them beginning to think about it-it was clear that they were listening to him, and that what he said, and what he thought of them, mattered to them. This was the best return yet on the old First Man fishbowl; combined with Arkady's stamp of approval, it gave him an influence over them that was palpable, he could shake their confidence, he could make them think, he could force them to re-evaluate, he could change their minds!

And so in the murky purple Great Storm dawn they wandered down the halls to the kitchen and talked on, looking out the windows and bolting down coffee, glowing with a kind of inspiration, with the age-old excitement of honest debate. And when they finally quit to go catch a little sleep before the day got going, even Marian was clearly shaken, and all of them were deep in thought, half-convinced that John was right.

John walked back to his guest suite feeling tired but happy. Whether Arkady had intended to or not, he had made John one of the leaders of his movement. Perhaps he would come to regret it, but there was no going back now. And John was sure it was for the best. He could be a sort of bridge between this underground and the rest of the people on Mars-operating in both worlds, reconciling the two, forging them into a single force that would be more effective than either alone. A force with the mainstream's resources and the underground's enthusiasm, perhaps. Arkady considered that an impossible synthesis; but John had powers that Arkady didn't. So that he could, well, not usurp Arkady's leadership, but simply change them all.

The door to his room in the guest quarters was open. He rushed in, alarmed, and there in the room's two chairs sat Sam Houston and Michael Chang. "So," Houston said. "Where have you been?"

##

"Oh come on," John said. His temper flared, his good mood burnt off in a flash. "Did I pick the wrong door by mistake?" He leaned back out to look. "No, I didn't. These are my rooms." He lifted his arms and clicked on his wristpad's recorder. "What are you doing in here?"

throw you out, and then we'll figure out who had the right to be in here.

Houston merely stared at him, and without warning John shoved him hard in the chest; Houston ran into his chair and sat down involuntarily, bounced up going for John, but Chang jumped between them, saying "Wait a second, Sam, wait a second," while John shouted "Get out of my rooms!" over and over at the top of his lungs, bumping against Chang's back and glaring over his shoulder into Houston's red face. John nearly burst into laughter at the sight; his high spirits had returned with the success of the shove, and he stalked to the door bellowing "Get out! Get out! Get out!" so that Houston would not see the grin on his face. Chang pulled his angry colleague out into the hall and John followed. The three of them stood there, Chang carefully placing himself between his partner and John. He was bigger than either of them, and now he faced John with a worried, irritated look.

"Now what did you want?" John said innocently.

"We want to know where you've been," Chang said doggedly. "We have reason to suspect that your so-called investigation of the sabotage incidents has been a very convenient cover for you."

"I suspect the same of you," John said.

Chang ignored him. "Things keep happening right after your visits, you see."

"They happen right during your visits."

"-hoppers of dust were dropped in every mohole you visited during the Great Storm. Computer viruses attacked the software in Sax Russell's office at Echus Overlook, right after your consultation with him in 2047. Biological viruses attacked the fast lichens at Acheron right after you left. And so on."

John shrugged. "So? You've been here two months, and that's the best you can do?"

"If we're right, it's good enough. Where were you last night?"

"Sorry," John said. "I don't answer questions from people who break into my rooms."

"You have to," Chang said. "It's the law."

Pauline. "Pauline, would you please look up all planetary records for theft of dental equipment?" She was as slow as a human in processing an incongruous request, but eventually the data were there. Then he had her go over the movement records of every suspect he could think of. When he was sure where everyone had been, he gave Helmut Bronski a call to protest the actions of Houston and Chang. "They say they're working with your authorization, Helmut, so I thought you should know what they're doing."

"They are trying their best," Helmut said. "I wish you would stop harrassing them and cooperate, John. It could be helpful. I know you have nothing to hide, so why not be more helpful?"

"Come on, Helmut, they don't ask for help. It's rank intimidation. Tell them to stop it."

"They are only trying to do their job," Helmut said blandly. "I have not heard of anything illegitimate."

John broke the connection. Later on he called Frank, who was in Burroughs. "What's with Helmut? Why is he turning the planet over to these policemen?"

"You idiot," Frank said. He was typing madly at a computer screen as he talked, so that he seemed to be only barely conscious of what he was saying. "Aren't you paying any attention at all to what's going on here?"

"I thought I was," John said.

"We're knee deep in gasoline! And these god-damned aging treatments are the match. But you never understood why we were sent here in the first place, so why should you understand anything now?" He typed on, staring hard into his screen.

John studied the little image of Frank on his wrist. Finally he said, "Why were we sent here in the first place, Frank?"

"Because Russia and our United States of America were desperate, that's why. Decrepit outmoded industrial dinosaurs, that's what we were, about to get eaten up by Japan and Europe and all the little tigers popping up in Asia. And we had all this space experience going to waste, and a couple of huge and unnecessary aerospace industries, and so we pooled

Either way it's gone! It's going now! And naturally the transnats don't like that, it's horrible for business when the world blows up. So they're scared, and they're deciding to try to hold things together by main force. Helmut and those policemen are only the smallest tip of the iceberg-a lot of policymakers think a world police state for a few decades or so is our only chance of getting to some kind of population stabilization without a catastrophe. Control from above, the stupid bastards."

Frank shook his head disgustedly, then leaned toward his screen and became absorbed in its contents.

John said, "Did you get the treatment, Frank?"

"Of course I did. Leave me alone, John, I've got work to do."

###

The southern summer was warmer than the previous one that had been shrouded in the Great Storm, but still colder than any recorded. The storm was now almost two m-years long, over three terran years, but Sax was philosophical about it. John called him at Echus Overlook, and when John mentioned the cold nights he was experiencing Sax only said, "We'll very likely have low temperatures for the greater part of the terraforming period. But warmer per se isn't what we're trying for. Venus is warm. What we want is survivable. If we can breath the air, I don't care if it's cold."

Meanwhile it was cold, cold everywhere, the nights down to a hundred below every night, even on the equator. When John reached Underhill, a week after leaving Senzeni Na, he found there was a kind of pink ice covering the sidewalks; it was nearly invisible in the storm's dim light, and walking around was a treacherous business. The people at Underhill spent most of their time indoors. John occupied a few weeks by helping the local bioengineering team field test a new fast snow algae. Underhill was crowded with strangers. Most of them were young Japanese or Europeans, who fortunately still used English to communicate with each other. John roomed in one of the old barrel vaults, near the northeast corner of the quadrant. The old quadrant was less popular than Nadia's concourse, smaller and dimmer, and many of its vaults were now were used for storage. It was strange to walk the square of hallways,

out to the mines and monoliths and other settlements, and going to work for the local security heads. And their Terran employment records were very interesting indeed.

Often at the end of a session with Pauline John would leave the quadrant, and go for a walk outside, feeling disturbed and thinking hard. There was a lot more visibility than there had been; things were clearing up a bit out on the surface, though the pink ice still make walking tricky. It seemed the Great Storm was lessening. Wind speeds on the surface were only two or three times the pre-storm average of thirty kilometers per hour, and the dust in the air was sometimes little more than a kind of thick haze, turning the sunsets into blazing pastel swirls of pink, yellow, orange, red, and purple, with random streaks of green or turquoise appearing and disappearing, along with icebows, and sundogs, and occasional brilliant shafts of pure yellow light: nature at her most tasteless, transient and spectacular. And watching all that hazy color and movement John would be distracted from his thoughts, and climb the great white pyramid to have a look around, and then go back inside ready to start the fight again.

One evening after one of these sunset extravaganzas he climbed down the peak of the great pyramid, and walked slowly back toward Underhill- and then he spotted two figures climb out one of the garage side doors, and down a clear crawltube into a rover. There was something quick and furtive in their motion, and he stopped to look closer: they did not have their helmets on, and he recognized Houston and Chang by the backs of their heads and the size of their bodies. They moved with scurrying terran inefficiency into the rover, and drove toward him. John polarized his faceplate and started walking again, head down, trying to look like someone coming in from work, veering to the side a bit to increase the distance between him and them. The rover dove into a thick dust cloud and disappeared abruptly.

By the time he got to the lock doors he was deep in thought, and almost frightened. He stood motionlessly at the door, thinking it over, and when he moved it was not to the door, but to the intercom console in the wall next to the door. There were several different kinds of jacks under the speakers,

shining. There was the bed, there was something on it, then the wall. "Back ten degrees," John said, and squinted trying to comprehend the two centimeter square image. His bed. There was a man lying on his bed. Wasn't that what it was? The bottom of a shoe, torso, hair. It was hard to tell. It didn't move. "Pauline, do you hear anything in the room?"

"The vents, the electricity."

"Transmit to me what you're picking up on your mike, at full volume." He leaned his head to the left against his helmet, cramming his ear against the helmet speaker. A hiss, a whoosh, static. There was too much transmission error in a process like this, especially using these corroded old jacks. But certainly he heard no breathing. "Pauline, can you enter the Underhill monitoring system, and locate our vault's door camera, and transmit its image to my wrist, please?"

He had directed the installation of Underhill's security system, just a few years before; Pauline still had all the plans and codes, and it didn't take long for her to replace the image on his wrist with that of the suite outside his room, seen from above. The suite's lights were on, and in the camera's sweeps he could see that his door was shut; that was all.

He let his wrist fall to his side and thought it over. Five minutes passed before he raised it again and began giving instructions through Pauline to the Underhill security system. Possession of the codes allowed him to instruct the entire camera system to erase its surveillance tapes, and then to run them in an hour loop rather than the usual eight-hour one. Then he instructed two of the cleaning robots to come to his room, and open its door. While they did that he stood shivering, waiting for them to make their slow roll through the vaults. When they opened his door, he saw them through Pauline's little eye; light poured into the room and momentarily blazed, then adjusted, and he had a much clearer view. Yes, it was a man on his bed. John's breath went shallow. He teleoperated the robots, using the minute button toggles on his wristpad. It was a jerky procedure, but if lifting the man woke him up, so much the better.

the body to the incinerators in the alchemist's quarter? But no-how that it was out of his room, he didn't need to get rid of the body. In fact he would need it later. For the first time he wondered who it was. He directed the first robot to put its extensor eye against the body's right wrist, and read with its magnetic imager. It took a long time for the eye to hit the right spot on the wrist. Then it held fast. The minute tag that everyone had implanted on a wristbone held information in the standard dot language, and it only took a minute for Pauline to get an ID. Yashika Mui, UNOMA auditor, based at Underhill, arrived 2050. An actual person. A man who might have lived a thousand years.

John began to shiver. He leaned against the glazed blue brick wall of Underhill. It would be an hour before he could go inside, or a little less. Impatiently he pushed off and walked around the quadrant. It took about fifteen minutes to walk around it usually, but now he found he was doing it in ten. After the second turn he walked over to the trailer park.

Only two of the old trailers were still there, and they were apparently abandoned or used only for storage. Figures loomed out of the night dust between them, and for a second he was afraid, but they passed on by. He returned to the quadrant and circled it again, then walked out the path to the alchemist's quarter. He stood looking at the antiquated complex of tubes and piping and squat white buildings, all covered with their black calligraphic equations. He thought of their first years. And now it had come to this, in what seemed the blink of an eye. In the gloom of the Great Storm. Civilization, corruption, crisis. Murder on Mars. He gritted his teeth.

An hour had passed, it was nine PM. He went back to the lock and went inside, took off his helmet and walker and boots in the changing room and stripped, went into the showers and showered, dried off and put on a jumper, combed his hair. He took a deep breath and walked around the south side of the quadrant and up through the vaults to the one with his room. As he was opening his door he was not surprised to see four of the UNOMA investigators appear, but he tried to act surprised when they ordered him to stop: "What's this?" he said.

rather than assaulted as murderous functionaries, and that was extremely hard to hold to.

In their confusion at the unexpected situation he managed to drive them off with a few biting sentences, and when he had closed the door on them he stood in the middle of his room. "Pauline, transmit what's happening on the security system to yourself, please, and record. Show me whatever cameras have them."

So Pauline tracked them. It only took a couple of minutes for them to go to the security control room, where they were joined by Chang and others. They went after the camera packs. John sat at Pauline's screen and watched right along with them as they ran the loops back and found that they were only an hour long, and that the events of the afternoon had been erased. That would give them something to think about. He smiled grimly and told Pauline to get off the system.

A wave of exhaustion swept through him. It was only eleven, but all adrenalin and the morning's dose of omegendorph had drained out of him, and he was tired. He sat on his bed, but then remembered what had last been there, and got up. In the end he slept on the floor.

He was awakened in the timeslip by Spencer Jackson, with news of a body discovered in a robot hopper. He went and stood wearily beside Spencer in the clinic, staring at the body of Yashika Mui while several of the investigators eyes him warily. The diagnostic machinery was as good at autopsy as anything else, maybe better; tests of minute samples were indicating a blood coagulant. Somberly John ordered a full criminal autopsy; Mui's body and clothes had to be scanned, and all microscopic particles read again his genome, and all foreign particles read against the list of people who were currently in Underhill. John stared at the UNOMA investigators as he made this instruction, but they didn't blink. Probably they had been wearing gloves and walkers, or teleoperated the whole thing as he had. He had to turn away to hide his disgust; he couldn't let on that he knew!

But then of course they knew that they had put the body there; and so they must suspect that he was the one who had removed it, and erased the

complete net of them--all the thousands burning as of old, without the slightest twinkle or flicker, the faint ones so dense that the black sky itself appeared slightly whitish, as if the whole sky were the Milky Way.

When he had recovered from his astonishment, and the almost-forgotten wonder of the stars, he got on his intercom and called in the news.

It caused pandemonium; people heard and woke their friends, and rushed down to the changing rooms to grab a walker before the supply was exhausted. And the lock doors started opening and spewing out crowds.

The sky to the east turned a blackish red, and then lightened quickly. The whole sky shifted to a dark rose shade, and then began to glow. The stars disappeared by the hundreds, until only Venus and the Earth hung in the east, over a growing intensity of light. The sky in the east grew brighter, and brighter again, until it seemed brighter than day could ever get; even behind faceplates their eyes watered, and some cried out over the common band at the sight. There were figures scampering around, the intercom babbling, the sky growing impossibly brighter, and brighter, and brighter yet, until it seemed it would burst, it pulsated with glowing pink light, the dots that were Venus and Earth overwhelmed by it. And then the sun cracked the horizon and fountained across the plain like a thermonuclear bomb, and the people roared and jumped up and down and ran among the long black shadows of the rocks and the buildings. All east-facing walls were great blocks of Fauvist color, their glaze mosaics stunning, hard to look at directly. The air was clear as glass and indeed seemed a solid substance, imbuing the things stuck in it with razor-edged clarity.

John walked out away from the crowds, east toward Chernobyl. He turned his intercom off. The sky was a darker pink than he remembered, with a touch of purple at the zenith. Everyone in Underhill was going crazy; many of the people there had never seen the sun shine on Mars, and no doubt it felt like they had lived their whole lives in the Great Storm. And now it was over, and they were wandering out in the sunshine drunk with it, slipping on pink ice left and right, getting in yellow snowball fights, climbing

went down to the comm center and called Sax in Echus Overlook. When he got him he congratulated him on the end of the storm.

Sax waved this away brusquely, as if it had happened years before. "They've boarded Amor 2051B," he said. This was the ice asteroid they had found for insertion into Martian orbit. They were in the process of installing rockets on it, which would knock it onto a course that would bring it in on a trajectory similar to the the Ares'; without a heat shield the aerobraking would burn it up. All looked well for a MOI ETA about six months away. That was the big news, Sax implied in his blinking, calm way. The Great Storm was history.

John had to laugh. But then he thought of Yashika Mui, and he told Sax about it because he wanted someone else's celebration to be ruined as well. Sax only blinked. ""They're getting serious," he finally said. Disgusted, John said good-bye and got off.

He wandered back out through the vaults, disturbed by a fiercely clashing mix of good and bad emotions. He returned to his room and took an omegandorph and one of the new pandorphs Spencer had given him, and then he went out into the quadrant's central atrium, and wandered among the plants, all skinny storm spawn, troping toward the light bulbs running overhead. The sky was still a clear dark pink, still very bright. A lot of the people who had gone out first were now back and in the atrium between the rows of crops, partying. He ran into a few friends, some acquaintances, mostly strangers. He went back into the vaults, through rooms full of strangers who sometimes cheered when he walked in. If they yelled "Speech!" long enough he would stand on a chair and rattle something off, feeling the endorphins, which today were rendered unpredictable in their effect by the thought of the murdered man. Sometimes he was pretty vehement, and he never knew what he was going to say until it came out of him. We saw John Boone drunk on his ass, they would say, the day the Great Storm ended. Fine, he thought, let them say what they wanted. It never mattered what he did anymore anyway, as far as the legend was concerned.

and that would still be true.

Nothing to say to that; and in fact such direct honesty was so much cleaner than what he had been dealing with through the night that he nodded, and said, "I see. I understand." Compare that after all to the hypocrisy of the West, where people talked of profit at prayer breakfasts, people who couldn't articulate a single belief they had; people who thought their values were physical constants, who would say "That's just the way things are," like Frank so often did.

So John stayed and talked with the Egyptians for a while, and when he left them he was feeling better. He wandered back to his vault, listening to the rowdy voices pouring into the hallway from every room; shouts, shrieks, happy scientist talk, "these things are such halophytes that they don't like brine because there's too much water in it," peals of laughter.

He had an idea. Spencer Jackson lived in the vault next door to John's, and was passing through when John hurried in, so John told him the idea. "We ought to gather everyone we can for a big celebration of the storm's end. All the sort-of Mars-centered groups, you know, or really everyone who can possibly make it. Anyone who wants to be there."

"Where?"

"Up on Olympus Mons," he said without considering it. "We could probably get Sax to time the arrival of his ice asteroid so that we could watch it from there."

"Good idea!" Spencer said.

Olympus Mons is a shield volcano, and therefore a cone that is not steep in most places, its great height resulting from its even greater breadth; it is twenty-five kilometers higher than the surrounding plain, but eight hundred kilometers across, so its slope averages about six degrees. But around the circumference of its great bulk there is a circular escarpment some seven kilometers high, and this spectacular cliff, twice as tall as that at Echus Overlook, is in most places close to vertical. Sections

one to the rim of the caldera.

The summit rim of Olympus Mons is so broad and flat that while it has an excellent view down into the many-ringed caldera, the rest of the planet cannot be seen from it; looking outward one sees only the outer edge of the rim, and then the sky. But on the south side of the rim there is a small meteor crater, with no name but its map designation, THA-Zp. The interior of this little crater is somewhat sheltered from the thin jet stream rushing over Olympus Mons, and standing on the southern arc of its fresh spiky rim, an observer finally has a view down the slope of the volcano, and then over the vast rising plain of west Tharsis; it is like looking down at the planet from a platform in low space.

###

It took almost nine months before the asteroid was brought to a rendezvous with Mars, and word of John's celebration had had time to get around. So they came in scattered rover caravans, in twos and fives and tens, up the north ramp and around to the southern outer slope of Zp; and they erected a number of big crescent-shaped clear-walled tents, with rigid clear floors that stood two meters off the ground, resting on clear entry stalks. They were the very latest thing in temporary shelter, in fact, and all set with their inner arcs facing uphill, so that when they were done they had a row of crescents stacked like stairs, like greenhouse gardens on a terraced hillside, overlooking the immense sweep of a bronze world. Every day for a week the caravans arrived, and dirigibles labored up the long slope, and were tethered inside Zp, filling it so that the interior of the little crater looked like a bowl of birthday balloons.

The size of the crowd surprised John, as he had expected only a few friends to travel to such a remote site. It was yet another proof of his inability to comprehend the planet's current population; there were nearly a thousand people gathered there together, it was amazing. Although many were faces he had seen before, and quite a few he knew by name. So it was a collection of friends, in a way. It was as if a home town that he hadn't known existed had suddenly sprung up around him. And since so many of the first hundred had come, forty of them in all, including Maya and

time to time to the locks to greet the latest arrivals.

During the days many of them wandered around outside the tents, collecting loose rock from the great curved slope. The Zp meteor's impact had scattered chunks of brecciated lava everywhere, including shistovite shattercones like pottery shards, some dead black, others a bright blood red, or flecked with impact diamonds. An areological team from Greece started laying these in a pattern on the ground under the raised floor of their tent, and they had brought a little kiln with them, so they could glaze some shards yellow or green or blue, to accent their designs. This idea caught on as soon as others saw it, and within two days each clear tent floor stood over a flagged parquet with a mosaic design: circuitry maps, pictures of birds and fish, fractal abstracts, Escher drawings, the Tibetan calligraphy spelling Om Mani Padme Hum, maps of the planet and of smaller regions, equations, people's faces, landscapes, and so on.

John spent his time wandering from tent to tent, talking with people and enjoying the carnival atmosphere-an atmosphere which did not preclude arguments, there were a lot of those-but most people spent the time partying, talking, drinking, going out on excursions on the wavy surface of the old lava flows, making mosaic floors, dancing to music made by various amateur bands. The best of these was a magnesium drum band, the instruments local, the players from Trinidad Tobago, a notorious transnational flag of convenience with a vigorous local resistance movement, of which the band were representatives. There was also a country western group with a good slide guitar player, and an Irish band with home-made instruments and a large shifting membership, which allowed it to play more or less non-stop. These three bands were all surrounded by crowds of dancers, and indeed the tents they occupied had all of their movement transformed into a kind of pulsing dance, as just getting from here to there was suddenly stuffed with the grace and exuberance of the music, the gravity, the view.

So it was a great festival, and John was pleased, partying hard in every waking moment. He didn't need any omegendorph or pandorph; once when Marian and the Senzeni Na crowd hustled him in a corner and started

A string of three sand-colored dirigibles floated up the slope of the volcano. They were small and antiquated, and did not answer radio inquiries. By the time they had scraped over Zp's rim and anchored among the larger and more colorful dirigibles in the crater, everyone was waiting to hear from the observers at the lock who they might be. When their gondolas popped open, and twenty or so figures in walkers stepped out, a silence fell. "That's Hiroko," Nadia said suddenly over the common band. The first hundred made their way quickly to the upper tent, looking up at the walktube that ran over the rim. And then the new visitors were walking down the tube to the tent lock, and were through and inside, and yes, it was Hiroko-Hiroko, Michel, Evgenia, Iwao, Gene, Ellen, Rya, Raul, and a whole crowd of youngsters.

Shrieks and shouts pierced the air, people were embracing, a few crying, and there were a good number of angry accusations; John himself couldn't help it when he got a chance to hug Hiroko, all those hours in his rover worrying about things, wishing he could have talked to her; now he took her shoulders in his hands and almost shook her, ready for hot words to pour from his throat; but her grinning face was so much like his memory of her and yet not-her face thinner and more lined, not her and yet clearly her-that her face blurred and flowed in his vision, from what he expected to see to what he saw. He was confused enough by this hallucinatory smear (in his feelings too) that he only said, "Oh, I've wanted to talk to you so!"

"And me to you," she said, although it was hard to hear her in the din; Nadia was intervening between Maya and Michel, for Maya was shouting "Why didn't you tell me?" again and again, before bursting into tears. John was distracted by this, and then he saw Arkady's face over Hiroko's shoulder, bunched in an expression that said there's going to be questions answered later, and he lost his train of thought. There were going to be some hard things said-but still, here they were! Here they were. Down in the tents the noise level had jumped twenty decibels. People were cheering their reunion.

###

was now quite possible that they were destined to watch each other age a lot more, if they were lucky. It was a strange sensation.

So they milled about, looking at the people in the tents below, and beyond them to the variegated orange carpet of the planet; and the conversations rushed this way and that in quick chaotic waves, creating interference patterns, so that sometimes they all went still at once and stood there together, stunned or bemused or grinning like dolphins. In the tents below, people occasionally looked up through the plastic arcs at them, curious to catch a glimpse of such a historic meeting.

Finally they sat in a scattering of chairs, passing around cheese and crackers and bottles of red wine. John leaned back in his chair and looked around. Arkady had one arm over Maya's shoulders, the other over Nadia's, and the three of them were laughing at something Maya had said; Sax was blinking his owlish pleasure, and Hiroko was beaming. John had never seen that look on her face in the early years. It was a shame to disturb such a mood, but there would never be a good time; and the mood would return. So in a quiet moment he said to Sax in clear loud tones, "I can tell you who's behind the sabotages."

Sax blinked. "You can?"

"Yes." He looked Hiroko in the eye. "It's your people, Hiroko."

That sobered her, though she still smiled: but it was the contained, private smile of old. "No no," she said mildly, and shook her head. "You know I wouldn't do that."

"I figured not. But your people are doing it without your knowledge. Your children, in fact. Working with the coyote."

Her eyes narrowed, and she threw a quick glance down at the tents below.

When she looked at John again he went on. "You grew them, right? Fertilized a bunch of your eggs, and grew them in vitro?"

After a pause she nodded.

"Hiroko!" Ann said. "You don't have any idea how well that ectogene process works!"

"We tested it," Hiroko said. "The kids have turned out all right."

there at the time the truck left. I hadn't given them any warning I was going to visit, so I assume the whole thing was planned before I got there, and they didn't know to stop it. Okakura probably went down the hole thinking he was going to get squished like a bug for the cause."

After another pause Hiroko said, "Are you sure?"

"I'm pretty sure. It was confusing for a long time, because it's not just them-there's more than one thing going on. But when I remembered where I had seen that first stone tooth I looked into it, and I found out that a whole shipment of dental equipment from Earth arrived empty, back in 2044. A whole freighter ripped off. It made me think I was onto something. And then, the sabotages kept happening in places and at times when no one who was in the net could possibly have done it. Like that time I visited Mary at the Margaritifer aquifer, and the well housing was blown up. It was clear it hadn't been done by anyone stationed there, it just wasn't possible. But that's a really isolated station, and there was no one else anywhere nearby at the time. So it had to be someone outside the net. And so I thought of you."

He shrugged apologetically. "When you check it out, you find that about half the sabotages simply couldn't have been done by anyone in the net. And in the other half, someone with a stone tooth was usually spotted in the area. It's becoming a pretty widespread fashion now, but still. I figured it was you, and I had my A.I. do an analysis which showed that about three-quarters of the cases have happened in the lower southern hemisphere, that or else inside a three thousand kilometer circle with the chaotic terrain at the east end of Marineris as its center point. That's a circle that holds a lot of settlements, but even allowing for that it seemed to me the chaos was a logical place for the saboteurs to hide. And we've all figured for years that that was where you folks went when you left Underhill."

Hiroko's face revealed nothing. Finally she said, "I will look into this."

"Good."

Sax said, "John, you said there was more than one thing going on?"

John nodded. "It hasn't just been sabotage, you see. Someone's been trying to kill me."

on. Their visit--their visit!--that was the best proof of my theory about the sabotages, because I managed to get a few skin cells off one of them, and I was able to get his DNA read and compared with some other samples found at some of the sabotage sites, and this person had been there. So those were the saboteurs, but they weren't trying to kill me, obviously. But one night at Hellas Low Point I was knocked down, and my walker cut open."

He nodded at his friends' exclamations. "That was the first intentional attack on me, and it came pretty soon after I went up to Pavonis, and talked to Phyllis and a bunch of transnational types about internationalizing the elevator and so on."

Arkady was laughing at him, but John ignored him and forged on. "After that, I was harrassed several times by UNOMA investigators that Helmut allowed to come up, and he did that under pressure from those same transnationals. And in fact I found out that most of those investigators had worked for Armscor or Praxis on Earth, rather than for the FBI like they told me. Those are the transnationals most involved with the elevator project and the mining on the Great Escarpment, and now they've got their own security people established everywhere, and this roving team of so-called investigators. And then, just before the big storm ended, some of those investigators tried to get me accused of that murder that happened at Underhill. Yes they did! It didn't work, and I can't absolutely prove it was them, but I saw two of them working on the set-up. And I think they killed that man, too, just to get me in trouble. To get me out of their way."

"You should tell Helmut," Nadia said. "If we present a united front and insist that these people be sent back to Earth, I don't think he could deny us."

"I don't know how much real power Helmut has anymore," John said. "But it would be worth a try. I want these people kicked off the planet. And those two in particular I've got recorded by the Senzeni Na security system, both going into the med clinic and messing with the cleaning robots before I did. So the circumstantial evidence against them is about as strong as it could be."

sure.

"Check their DNA again before you let them go," John said. "The murderer of that man in Underhill is among them, I'm sure of it."

"We will check," Helmut said heavily.

Sax cut the connection, and John looked around at his friends again. "Okay," he said. "But it'll take more than a call to Helmut to make all the changes we need. The time has come to act together again, across a whole range of issues, if we want the treaty to survive. That as a minimum, you know. A start on the rest of it. We need to form a coherent political unit no matter what kind of disagreements we might have."

"It won't matter what we do," Sax said mildly, but he was jumped on immediately, in an incomprehensible babble of competing protests.

"It does matter!" John cried. "We've got as much chance as anyone does of directing what happens here."

Sax shook his head, but the others were listening to John, and most seemed to agree with him: Arkady, Ann, Maya, Vlad, each from their different perspective. . . . It could be done, John could see it in their faces. Only Hiroko he could not read; her face was a blank, closed in a way that brought back a sharp pang of recollection. She had always been that way to John, and suddenly it made him ache with frustration and remembered pain, and he got annoyed.

He stood, and waved a hand outward; it was nearing sunset, and the enormous curved plate of the planet was dappled with an infinite texture of shadows. "Hiroko, can I have a word with you in private? Just for a second. We can go down into the tent below here. I just have a couple questions, and then we can come right back up."

The others stared at them curiously. Under that gaze Hiroko finally bowed, and walked ahead of John to the tube down to the next tent.

###

They stood at one tip of that tent's crescent, under the gazes of their friends above, and the occasional observer below. The tent was mostly empty; people were respecting the first hundred's privacy by leaving a gap.

John asked. "To make our children without asking us-to run away and hide in the first place-why? Why?"

Hiroko returned his gaze calmly. "We have a vision of what life on Mars can be. We could see it wasn't going to go that way. We have been proved right by what has happened since. So we thought we would establish our own life."

"But don't you see how selfish that is? We all had a vision, we all wanted it to be different, and we've been working as hard as we can for it, and all that time you've been gone, off creating a little pocket world for your little group! I mean we could have used your help! I wanted to talk to you so often! Here we have a kid between us, a mix of you and me, and you haven't talked to me in twenty years!"

"We didn't mean to be selfish," Hiroko said slowly. "We wanted to try it, to show by experiment how we can live here. Someone has to show what you mean when you talk about a different life, John Boone. Someone has to live the life."

"But if you do it in secret then no one can see it!"

"We never planned to stay secret forever. The situation has gotten bad, and so we've stayed away. But here we are now, after all. And when we are needed, when we can help, we will appear again."

"You're needed every day!" John said flatly. "That's how social life works. You've made a mistake, Hiroko. Because while you've been hiding, the chances for Mars remaining its own place have gone way down, and a lot of people have been working to speed that disappearance, including some of the first hundred. And what have you done to stop them?"

Hiroko said nothing. John went on: "I suppose you've been helping Sax a little in secret. I saw one of your notes to him. But that's another thing I object to-helping out some of us and yet not others."

"We all do that," Hiroko said, but she looked uncomfortable.

"Have you had the gerontological treatments in your colony?"

"Yes."

"And you got the process from Sax?"

"Yes."

The subject never came up.

"We were too old!"

"We were not too old. We chose not to think of it. Most ignorance is by choice, you know, and so ignorance is very telling about what really matters to people. You did not want children, and so you did not know about late birth. But we did, and so we learned the techniques. And when you meet the results, I think you will see it was a good idea. I think you will thank us. What have you lost, after all? These children are ours. But they have a genetic link to you, and from now on they will exist for you, as an unexpected gift, say. As a quite extraordinary gift." Her Mona Lisa smile appeared and disappeared.

The concept of the gift, again. John paused to think about it. "Well," he finally said. "We'll be talking about that for a long time, I suspect."

Twilight had turned the atmosphere below them into a dark purple band, running like a velvet border around the black star-studded bowl which had appeared over their heads. In the tents below they were singing, led by the Sufis: "Harmakhis, Mangala, Nirgala, Aquakuh; Harmakhis, Mangala, Nirgala, Aquakuh," and around again, time after time, adding grace notes that were other names for Mars, and encouraging the bands already there to add instrumental accompaniments of all kinds, until every tent was filled with this song, all of them singing together. The Sufis then began their whirling, and little knots of dancers swirled all through the crowds.

"Will you at least stay in contact with me now?" John said intently to Hiroko. "Will you give me that?"

"Yes."

###

They returned to the upper tent, and the group went down together into the general party, and joined the celebration. John made his way slowly to the Sufis, and tried the spins he had learned from them on their mesa, and people cheered and caught him when he spun out of control into the spectators. After one fall he was helped to his feet by the thin-faced man with dreadlocks who had led the midnight visit to his rover. "Coyote!" John cried.

John watched him disappear among the faces in the crowd, feeling the tequila burn in his stomach. The Sufis, Hiroko, now Coyote; the gathering was blessed. He saw Maya and hurried over to her and threw an arm over her shoulder, and they walked through the tents and the connecting tunnels, and people toasted them as they passed. The rigid tent floors were gently bouncing up and down.

The countdown reached two minutes, and many people ascended to the upper tents, and then pressed against the clear walls of the south-facing arcs. The ice asteroid would probably burn up in a single orbit, its injection trajectory was so steep; an object half the size of Phobos burned to steam and then, as it got hotter, to oxygen and hydrogen molecules; and all in a matter of minutes. No one could be sure what it would look like.

So they stood there, some of them still singing the chords of the name round. And then a final countdown was picked up by more and more of them, until they were all into the last ten, shouting out the reversed sequence of numbers at the top of their lungs, in the astronaut's primal scream. They roared out "zero!", and for three breathless heartbeats nothing happened; then a white ball trailing a blazing fan of white fire came shooting up over the southwestern horizon, as big as the comet in the Bayreuth Tapetry, and brighter than all the moons and mirrors and stars combined. Burning ice, bleeding across the sky, white on black, hurtling fast and low, so low that it was not much higher than they were on Olympus, so low that they could see white chunks bursting back through the tail and falling away like giant sparks. Then about halfway across the sky it broke into fragments, and the whole collection of incandescent blazes tumbled east, scattering like buckshot. All the stars suddenly shuddered; it was the first sonic boom, striking the tents and shaking them. A second boom followed, and the phosphor chunks bounced wildly for a moment as they tumbled down the sky and disappeared over the southeast horizon. Their firedrake tails followed them into Mars, and disappeared, and it was suddenly dark again, the ordinary night sky standing overhead as if nothing had happened. Except the stars were twinkling.

###

Nirgal, Shaibatalu, Simdu, Hu. She walked through the crowd right to John, and facing him she plucked up his right hand and pulled it aloft, and suddenly shouted, "John Boone! John Boone!"

And then everyone was cheering and yelling "Boone! Boone! Boone! Boone!" and others were shouting "Mars! Mars! Mars!"

John's face blazed like the meteor had, and he felt stunned, as if a piece of it had pinged him on the head. His old friends were laughing at him, and Arkady yelled "Speech!" in what he imagined was an American accent: "Speech! Speech! Speeeeeeeeeeech!"

Others picked this up, and after a time the noise died down, and they watched him expectantly, laughter rippling through them at the sight of his slack-faced astonishment. Hiroko released his hand, and he raised the other one helplessly, holding both overhead with hands outstretched.

"What can I say, friends?" he cried. "This is the thing itself, there are no words for this. This is what words ask for."

But his blood ran high with adrenalin, with tequila and omegendorph and happiness, and without willing it the words spilled out of him as they so often had before. "Look," he said, "here we are on Mars!" (Laughter) "That's our gift and a great gift it is, the reason we have to keep giving all our lives to keep the cycle going, it's like in eco-economics where what you take from the system has to be balanced by what you give in to it, balanced or exceeded to create that antri-entropic surge which characterizes all creative life and especially this step across to a new world, this place that is neither nature nor culture, transformation of a planet into a world and then a home. Now we all know that different people have different reasons for being here and just as important the people who sent us up had different reasons for sending us, and now we're beginning to see the conflicts caused by those differences, there are storms brewing on the horizon, meteors of trouble flying in and some of them are going to strike dead on rather than skip overhead like that blaze of white ice just did!" (Cheers). "It may get ugly at times it almost certainly will get ugly, so we have to remember that just as these meteor strikes enrich the atmosphere, thicken it and add the elixir oxygen to the poison soup outside these tents, the

DNA pieces of culture all made and broken and mixed by history, and we can choose and cut and clip together from what's best in that gene pool, knit it all together the way the Swiss did their constitution, or the Sufis their worship, or the way the Acheron group made their latest fast lichen, a bit from here and there, whatever's appropriate, keeping in mind the seven generation rule, thinking seven generations back and seven generations forward, and seven times seven if you ask me because now it's our lives we're talking about extending way off into the years, we don't know how that will affect us yet, but it's certainly true that altruism and self-interest have collapsed together more tightly than ever before. But also it's still and always our children's lives and our children's children and on down forever that we have to think of, we must act in a way that gives them just as many chances as we have been given and hopefully more, channeling the sun's energy in ever more ingenious ways to reverse the flow of entropy in this little pocket of the universal flow. And I know that's an awfully general way of putting it when this treaty that orders our lives here is coming up for renewal so soon, but we have to keep that level in mind because what's coming is not just a treaty but more a kind of constitutional congress, because we're dealing with the genome of our social organization here, you can do this, you can't do that, you have to do this, to eat or to give. And we've been living by a set of rules established for empty land, the Antarctic treaty so fragile and idealistic which has held that cold continent free of intrusion for so long, up until the last decade in fact when it's been chipped away at, and that's a sign of what's beginning to happen here too. The encroachment on that set of rules has begun everywhere, like a parasite feeding on the edges of its host organism, because that's what the replacement set of rules is, the old parasitic greed of the kings and their henchmen, this system we call the transnational world order is just feudalism all over again, a set of rules that is anti-ecologic, it does not give back but rather enriches a floating international elite while impoverishing everything else, and so of course the so-called rich elite are in actuality poor as well, disengaged from real human work and therefore from real human accomplishment, parasitical in the most precise sense, and yet

common good, for Mars and for us and for all the people on earth and for the seven generations, it's going to be hard it's going to take years, and the stronger we are the better our chances, which is why I'm so happy to see that burning meteor in the sky pumping the matrix of life into our world, and why I'm so happy to see you all here to celebrate it together, a representative congress of all that I love in this world, but look I think that steel drum band is ready to play aren't you" (shouts of assent) "so why don't you folks start and we'll dance till dawn and tomorrow scatter on the winds and down the sides of this great mountain, to carry the gift everywhere."

Mad cheers. The magnesium drum band picked them up into its staccato flurry of plinks and plonks, and the crowd heaved into motion again.

They partied all night long. John spent the time wandering from tent to tent, shaking hands and hugging people, "Thanks, thanks, thanks. I don't know, I don't remember what I said. But this is what I meant all along, this right here." His old friends laughed at him. Sax, drinking coffee and looking supremely relaxed, said to him, "Syncretism is it? Very interesting, very well put"-with the tiniest of smiles. Maya kissed him, Vlad and Ursula and Nadia kissed him; Arkady lifted him up and with a great roar swirled him around in the air, giving him a hairy kiss on each cheek and shouting, "Hey, John, could you repeat that please?" hooting at the very thought. "You amaze me, John, you always amaze me!" And Hiroko with her private smile, with Michel and Iwao flanking her, grinning at him. . . .

Michel said, "I think this is what Maslow meant by the term peak experience," and Iwao groaned and elbowed him, while Hiroko reached out and touched John on the arm with her forefinger, as if to pass along a certain animating touch, a power, a gift.

###

They next day they sorted and bagged the party wreckage and took down the tents, leaving the flagstone terraces behind, like strands of cloisonné necklace draped down the side of the old black volcano. They said good-bye to the dirigible crews, and the dirigibles drifted down the

the rest, and the plan was agreed on. After that they talked about what the contents of the draft treaty should be, calling around to all the caravans and the dirigibles. The next day they came to the ramp down the northern escarpment, and at its foot they took off each in every direction. "That was a good party!" John said over the radio to each in turn. "See you at the next one!"

The Sufis rolled by while they were stopped, and they waved from their windows came on the radio to say good-bye as well. John recognized the voice of the old woman who had tended him at the toilet after his dance in the storm; as he was waving at their caravan she said over the radio,

"Whether it be of this world or of that,
Your love will lead us yonder at the last."

Part Six Guns Under the Table

The day John Boone was assassinated we were up on east Elysium and it was morning and this meteor shower came raining down on us, there must have been thirty streaks or so and they were all black, I don't know what those meteorites were made of but they burned black instead of white. Like smoke from crashing planes except straight and fast as lightning. It was so strange to see that we all were amazed and we hadn't even yet heard the news, but when we did we figured back, and it happened at exactly the same time.

We were down in Hellas Lakefront and the sky went dark and a sudden wind whipped over the lake and blew every walktube in that town away, and then we heard.

We were in Senzeni Na where he worked a lot, and it was night and lightning started hammering us, giant bolts of lightning were shooting right down into the mohole, no one could believe it, and it was so loud you couldn't hear. And there was a picture of him down in the worker's quarters, up on the wall of one suite, and a lightning bolt hit the the

on to his room and came back with one of the ignition transmitter boxes, and when he explained what it was Nadia got really furious at all of us, she said Why would you ever do a thing like that? And Arkady was crying and yelling What do you mean why? Because of this, because of what just happened to John, they killed him, they killed him! Who knows which of us will be next! They'll kill all of us if they can! And Nadia kept trying to give the transmitter back and he got so upset, he kept making her hold it saying Please Nadia please, just in case, just in case, please, until finally she had to keep it to get him to calm down. I never saw anything like it.

We were in Underhill and the power went off, and when it came back on every plant in the farm had frozen solid. The lights and heat came back on and the plants all began to wilt. We sat around all night telling stories about him. I remembered what it was like when he first touched down back in the twenties, a lot of us did. I was just a kid at the time but I remember everyone laughing at his first words, I thought it was funny myself but I remember being very surprised that all the adults were laughing too, everyone was so tickled, I think everyone fell in love with him at that moment, I mean how could you not like someone who was the first person on another planet walking out there and saying Well, here we are. It was impossible not to like him.

Oh I don't know. I saw him punch a man once, it was on the Burroughs train and he was in our car obviously high, and there was this woman who had some kind of deformity, a big nose and no chin and when she went down to the toilets some guy said My Lord, that woman has really been beat hard with the ugly stick, and Boone bam! knocks him into the next seat and says, There is no such thing as an ugly woman.

That's what he thought.

That is what he thought, why he slept with a different woman every night, and he didn't care what they looked like. Or how old they were, he had to talk fast when they found him with that fifteen year-old. I don't suppose Toitovna ever heard of that one or it would have been his balls, and hundreds of women would have gone wanting. He used to like to do it in two-person gliders with the woman on top of him while he piloted.

I've never met a man more arrogant.

We were on Olympus Mons and the whole sky went black.

Well, back before the beginning, Paul Bunyon came to Mars, and he brought his blue ox Babe with him. He walked around looking for lumber and his every footprint cracked the lava and left a rift canyon. He was so tall that he could reach into the asteroid belt while he walked around, and he chewed those rocks like Bing cherries and spit the pits out and boom there would be another crater.

And then he ran into Big Man. It was the first time Paul had ever seen anyone bigger than himself, and believe me Big Man was bigger-the usual two magnitudes, and that's ain't just twice as big let me tell you. But Paul Bunyon didn't care. When Big Man said let's see what you can do with that axe of yours Paul said sure, and with one stroke he hit the planet so hard that all the cracks of Noctis appeared at once. But then Big Man scratched the same spot with his toothpick, and the entire Marineris system yawned open. Let's try bare fists, Paul said, and he landed a right cross on the southern hemisphere and there was Argyre. But Big Man tapped a spot nearby with his pinky and there was Hellas. Try spitting, Big Man suggested, and Paul spat and Nirgal Vallis ran as long as the Mississippi. But Big Man spat and all the big outflow channels ran at once. Try shitting! Big Man said, and Paul squatted and pushed out Ceraunius Tholus-but Big Man threw back his butt and there was the Elysium massif right next to it, steaming hot. Do your worst, Big Man suggested. Take a shot at me. And so Paul Bunyon picked him up by the toe and swung his whole bulk around and slammed him into the north pole so hard that that whole northern hemisphere is depressed to this day. But without even getting up Big Man grabbed Paul by the ankle, and caught up his blue ox Babe in that same fist, and swung them into the ground and slammed them right through the planet and almost out the other side. And that's the Tharsis bulge-Paul Bunyon, almost sticking out-Ascræus his nose, Pavonis his cock, and Arsia his big toes. And Babe is off to one side, pushing up Olympus Mons. The blow killed Babe and Paul Bunyon both, and after that Paul had to admit that he was beat.

with energy ready to be unleashed, waiting to get to work. More residue. Whoever wants it the most wins!

He showered and dressed, padded down to the dining hall. It was just after dawn. Sunlight flooded Isidis with horizontal beams of redbronze light, and high in the eastern sky cirrus clouds looked like copper shavings.

Rashid Niazi, the Syrian representative to the conference, passed by and gave Chalmers a cool nod. Frank returned it and walked on. Because of Selim el-Hayil, the Ahad wing of the Moslem Brotherhood had gotten blamed for Boone's assassination, and Chalmers had always been quick and public in defending them from all such accusations. Selim had been a lone assassin, he always asserted, a mad murder-suicide. This underlined the Ahads' guilt while at the same time commanding their gratitude. Naturally Niazi, an Ahad leader, was a bit frustrated.

Maya came into the dining room and Frank greeted her cordially, automatically covering the discomfort he always felt in her presence.

"May I join you?" she said, watching him.

"Of course."

Maya was perceptive, in her way; Frank concentrated on the moment. They chatted. The subject of the treaty began to come up, and so Frank said, "How I wish John were here now. We could use him." And then: "I miss him." This kind of thing would distract Maya instantly. She put her hand over his; Frank scarcely felt it. She was smiling, her arresting gaze full on him. Despite himself he had to look away.

The TV wall was showing the news package beamed up from Earth, and he tapped on the table console and turned up the sound. Earth was in bad shape. The video was of a massive protest march in Manhattan, the whole island packed with a crowd the protesters would call ten million and the police five hundred thousand. The helicopter images were quite arresting, but there were a lot of places these days that, although less visual, were much more dangerous. In the advanced nations people were marching because of draconian birth population reduction acts, laws that made the Chinese look like anarchists, and the young had erupted in fury and dismay, feeling their lives pulled out of their hands by a great crowd of

a hundred and you're off, to retirement orbitals, the moon, or here.

"Especially here."

"Maybe," he said.

"I suppose that explains their stubbornness about emigration quotas."

Frank nodded. "We'll never get those. They're under too much pressure down there, and we're seen as one of the few escape valves. Did you see that program aired on Euronews about all the open land on Mars?" Maya shook her head. "It was like a real estate ad. No. If the UN delegates gave us any say in emigration, they'd be crucified."

"So what do we do?"

He shrugged. "Insist on the old treaty at every point. Act like every change is the end of the world."

"So that's why you were so crazy about the preface material."

"Sure. That stuff may not be all that important, but we're like the British at Waterloo. If we give at any point the whole line collapses."

She laughed. She was pleased with him, she admired his strategy. And it was a good strategy, although it was not the one he was pursuing. For they were not like the British at Waterloo; they were if anything like the French, making a last-ditch assault which they had to win if they wanted to survive. And so he had been very busy giving in on many points in the treaty, hoping to thrust forward and hold on to what he really wanted in other areas. Which certainly included some remaining role for the American Martian Department, and its Secretary; after all, he needed a base from which to work.

So he shrugged, dismissing her pleasure. On the TV wall the crowds boiled up and down the great avenues. He clenched his teeth a few times. "We'd better get to it again."

Upstairs the conferees were milling about in a sequence of long high rooms that were divided by tall partitions. Sunlight streamed into the big central room from the eastern meeting chambers, throwing a ruddy glare over the white pile carpet and the squarish teak chairs and the dark pink stone of the long table top. Knots of people were chatting casually against the walls. Maya went off to confer with Samantha and Spencer. The three

representatives and eighteen UN officials took their seats, another hundred continued to wander in the eastern rooms, watching the discussion through the open portals or on small TVs. Outside the windows, Burroughs crawled with figures and vehicles, moving around in the clear-walled mesas, and the tents on and between the mesas, and in the network of connecting clear walktubes that lay on the ground or arched through the air, and in the huge valley tent with its wide streetgrass boulevards and its canals. A little metropolis.

Helmut called the session to order. In the eastern rooms people clustered around the TVs. Frank glanced through a portal into the east room nearest him; there would be rooms like that all over Mars and Earth, thousands of them, with millions of observers. Two worlds watching.

The day's topic, as it had been for the past two weeks, was emigration quotas. China and India had a joint proposal to make; the head of the Indian office rose and read it in his musical Bombay English. Stripped of camouflage it came down to a proportional system, of course. Chalmers shook his head. India and China between them had forty percent of the world's population, but they were only two votes of fifty-three at this conference, and their proposal would never pass. The Brit in the European delegation rose to point out this fact, not in so many words of course. Wrangling began. It would go on all morning. Mars was a real prize, and the rich and poor nations of Earth were struggling over it as they were over everything else. The rich had the money but the poor had the people, and the weapons were pretty evenly distributed, especially the new viral vectors that could kill everyone on a continent. Yes, the stakes were high, and the situation existed in the most fragile of balances, the poor surging up out of the south and pressing the northern barriers of law and money and pure military force. Gun barrels in their faces, in essence. But now there were so many faces; a human wave attack might explode at any instant, it seemed, just from the expansive pressure of sheer numbers-attackers shoved over the barricades by the press of babies in the rear, raging for their chance at immortality.

with their aides, they agreed.

So the three delegates walked out of the rooms and down the corridors to the bridge, a rigid walktube which began at the wall of their mesa and arched out over the valley and into the side of an even taller mesa to the south. The bridge's height gave it an airy flying magnificence, and there were quite a few people walking its four kilometers, or just standing midway and taking in the view of Burroughs.

"Look," Chalmers said to his two colleagues, "the expense of emigration is so great that you will never ease your population problems by moving them here. You know that. And you already have lots more reclaimable land in your own countries. So what you want from Mars isn't land but resources, or money. Mars is leverage to get your share of resources back home. You're lagging behind the North because of resources that were taken from you without payment during the colonial years, and you should have repayment for that now."

"I am afraid that in a very real sense the colonial period never ended," Hanavada said politely.

Chalmers nodded. "That's what transnational capitalism means; we're all colonies now. And there's tremendous pressure on us here, to alter the treaty so that most of the profits from local mining become the property of the transnationals. The developed nations are feeling that very strongly."

"This we know," Hanavada said, nodding.

"Okay. And now you've made the pitch for proportional emigration, which is just as logical as allotting profits proportional to investment. But neither of these proposals is in your best interest. The emigration would be a drop in the bucket to you, but the money wouldn't. Meanwhile the developed nations have a new population problem, so a chance at a larger share of emigration would be welcome. And they can spare the money, which would mostly go to transnationals anyway and become free-floating capital, outside any national control. So why shouldn't the developed nations give you more of it? It wouldn't really be coming out of their pocket anyway."

And your government? Hanavaba asked.

"I can guarantee it." Actually the administration would be a problem. But Frank would deal with them when the time came, they were a bunch of Chamber of Commerce kids these days, arrogant but stupid. Tell them it was this or a third world Mars, a Chinese Mars, a Hindu Chinese Mars, with little brown people and cows unmolested in the walktubes. They would come around. In fact they would hide behind his knees yelling for protection, Grandpa Chalmers please save me from the yellow horde.

He watched the Indian and the Chinese look at each other, in a completely scrutable consultation. "Hell," he said, "this is what you were hoping for, right?"

"Perhaps we should work on some figures," Hanavaba said.

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It took much of the next month to implement the compromise, as it entailed a whole set of corollary compromises to get the all voting delegations to accept it. Every nation's delegate had to get a cut to show the folks back home. And there was Washington to be convinced as well; in the end Frank had to go over the heads of the kids right to the President, who was only a bit older than them, but could see a deal when it was poking him in the sternum. So Frank was busy, meetings nearly sixteen hours a day in his old pattern, as familiar as the sunrise. In the end, mollifying transnat lobbyists like Andy Jahns was the hardest part-essentially impossible, as the deal was being made at their expense and they knew it. They put all the pressure they could on the northern governments and on their flags of convenience, and that was considerable, as evidenced by the President's scared irritability, and the defection of Singapore and Sofia from the deal. But Frank convinced the President, even across all that space, even across the deep psychological barrier of the time lag. And he used the same arguments with every other northern government. If you give in to the transnationals, he would say, then they're the real government of the world. This is the chance to assert the interests of you and your population over those freefloating accumulations of capital

staked into place along every millimeter of the circumference. And as the giant heaved to free itself and start trampling about, they had to rush from side to side, throw new lines over the monster, hammer new little pin stakes into place. Rush around making quarter-hour pin-stake appointments, for sixteen hours a day. Mad Dutch boy juggling.

Andy Jahns took him to dinner one night. He was angry with Chalmers, naturally, but tried to hide it, as the evening's business consisted of the offer of a bribe thinly disguised, accompanied by threats thinly veiled. Business as usual, in other words. He offered Chalmers a position as head of a foundation which was being set up by the Earth-to-Mars transport consortium-the old aerospace industries, with their old Pentagon stash still sloshing around in their pockets. This new foundation would assist the consortium to make policy, and advise the UN on Mars-related matters. The position was to begin after his tenure as Secretary for Mars was over, to avoid any appearance of conflict of interest.

"It sounds marvelous," Chalmers said. "I'm very interested indeed." And over the course of the dinner he convinced Jahns he was sincere. Not only about taking the position in the foundation, but in working for the consortium immediately. This was work indeed, but he was good at it; he could see the suspicion slowly leak out of Jahns as the evening wore on. The weakness of businessmen: the belief that money was the point of the game. "I'll do what I can," Chalmers promised energetically, and outlined some strategies he would start to pursue at once. Talk to the Chinese about their need for land, get Congress back to the idea of a fair return on investments. Certainly. Make promises here and some of the pressure would subside; meanwhile the work could go on. There was no pleasure like double-crossing a crook.

So he went back to the conference table and carried on as before. The walk on the bridge, as it was now being called (others called it the Chalmers Shift), had broken the impasse. February 6th, 2057; Ls=144, m-16; a red-letter date in the history of diplomacy. Now it was a matter of giving everyone else a piece, and fixing the actual numbers. As this process ground along Chalmers talked with all the first hundred observers

Calcutta on a bad day. "Amn, Amn, Amn. What would you have done? What would you have done except stalk around glaring at every single fucking thing people said, and convincing everyone that you're from Mars? Jesus Christ. Go out and play with your rocks and leave the politics to people who can think."

"Remember what thinking is, Frank," she said. Somehow he had made her smile for a second there, in the middle of his tirade. But she laid the same old wild glare on him before she left.

But Maya, now; Maya was pleased with him. He could feel her gaze on him when he talked in the public meetings. Millions of people watching, and he felt only that gaze. It made him angry. She was full of admiration for the bridge walk, and he told her only what she would be pleased to hear about the backstage compromises he was making in order to get it accepted. She began joining him every evening during the cocktail hour, approaching him when the first press of critics and supplicants had ebbed, standing by his side through the second and third waves, watching and easing things along with her laugh, and extricating him from time to time with reminders that they had to go out and eat. Then they would go out onto restaurant terraces under the stars, and eat and then sip coffee, looking over the orange tiles and roof gardens under one of the big mesa-topping tents, feeling the evening breeze just as if they were out in the open. The MarsFirst crowd had committed themselves to his plan; so he had most of the locals, and he had the home office, and those were the two most important single parties in the whole process, he judged, aside from the transnational leadership, which he could do little about. So it was only a matter of time before he would work the deal. As he would tell her, sometimes, late in the evenings when he had fallen a bit under her spell. Been calmed by her. "Between us we'll get it done," he would say as he looked up at the vivid stars in the sky, unable to meet her penetrating gaze.

And one night she kept returning to his side during the cocktail gathering. With all the others they watched the terran news reports of the day's progress, and saw again how oddly distorted and flattened they appeared, like tiny players in an incomprehensible soap opera. And then

Afterward she walked around with a white sheet draped over her like a cape, getting a glass of water. "I like the way you work those people," she said, her back to him. She drank from the glass, looked over her shoulder with her old affectionate grin, with that full and open gaze of hers, a gaze that seemed so insightful, like lazed light shining right through him, that suddenly he felt not only naked, but exposed. He pulled the remaining sheet up over his hip, then felt that he had given himself away. Surely she would see, see the way the air turned to cold water in his lungs, the way his stomach knotted, the way his feet froze. He blinked, returned her smile. He knew it was a wan and crooked smile; but feeling his face like a stiff mask over his real flesh, he took comfort. No one could accurately read emotions from facial expressions, that was all a lie, a bogus relationship as in palm reading or astrology. So he was safe.

But after that night she began spending a lot of time with him, both in public and private. She joined him at the receptions given every night by one or another of the national offices; she sat beside him at many of the group dinners; she sailed the hot sea of conversation with him afterward, as they watched the bad news from Terra, or sat in the close knot of the first hundred. And she went with him to his room at night, or even more disturbing, took him to hers.

And all without any sign of what she wanted from him. He could only conclude that she knew she did not have to speak of it. That just being with him was enough, that he would know what she wanted, and try his best to do it without her ever having to say a word. That she would get what she wanted. For of course it was impossible that she was doing it all without cause. That was the nature of power; when you had it no one was ever again simply a friend, simply a lover. Inevitably they all wanted things you could give them-if nothing else, the prestige of friendship with the powerful. That was prestige that Maya did not need, but she knew what she wanted. And wasn't he doing it, after all? Infuriating a large part of his power base, to forge a treaty that would please no one but a handful of locals? Yes, she was getting what she wanted. And all without a word, or without a direct word. Nothing but praise and affection.

people who knew you best. . . that she should be so stupid. . . It was shocking to realize these things more strongly than ever before. How hidden the true self is, he thought, under the phenomenological mask. In reality they were all actors all the time, playing their video parts, and there was no chance of contact with the true selves inside others, not anymore; over the long years their parts had hardened into shells and the selves inside had atrophied, or wandered off and gotten lost. And now they were all hollow.

Or perhaps it was just him. Because she seemed so real! Her laughter, her white hair, her passion, my God: her sweaty skin and the ribs underneath it, ribs that slid back and forth under his fingers like the slats of a fence, ribs that clamped down on the paroxysms of orgasm. A true self, didn't it have to be so? Didn't it? He could hardly believe otherwise. A true self.

But sadly deceived. One morning he awoke from a dream of John. It was from their time together on the space station, when they had been young. Except in the dream they had been old, and John had not died and yet he had; he spoke as a ghost, aware that he had died and that Frank had killed him, yet aware also of everything that had happened since, and free of all anger or blame. It was just something that had happened, like the time John had gotten the first landing assignment, or had taken Maya away on the Ares. A lot of things had happened between them one way and another, but they were still friends, still brothers. They could talk, they understood each other. Feeling the horror of that Frank had groaned through the dream, and tried to fold in on himself, and awakened. It was hot, his skin was sweaty. Maya was sitting up, her hair wild, her breasts swinging loosely between her arms. "What's wrong!" she was saying. "What's wrong!"

"Nothing!" he cried, and got up and padded to the bathroom. But she came after him, put her hands on him. "Frank, what was it?"

"Nothing," he shouted, involuntarily jerking out of her grip. "Can't you leave me alone!"

beautiful and very dangerous, her mouth a tight line. She shook her head in disgust and walked away. "You don't have the faintest idea, do you," she said.

He followed her. "What do you mean?"

She threw the sheet away and stepped violently into her underwear, yanked it up over her bottom. As she dressed she hurled short sentences at him. "You don't know anything about what other people think. You don't even know what you think. What do you want out of the treat? You, Frank Chalmers? You don't know. It's only what I want, what Sax wants, what Helmut wants. What any of them want. You yourself have no opinion. Whatever is easiest to manage. Whatever leaves you in control at the end.

"And as for feelings!" She was dressed, standing at the door. She stopped to glare at him, a look like a lightning strike: he had been standing there too stunned to move and so now he stood there naked before her, exposed to the full blast of her scorn. "You don't have any feelings, do you. I've tried, believe me, but you just-" She shuddered, apparently unable to think of words vile enough to describe him. Hollow, he wanted to say. Empty. An act. And yet-

She walked out.

###

So when they signed the new treaty, Maya was not at his side; not even in Burroughs. Which a relief in many ways, really. And yet he could not help but feel empty, and cold in the chest; and certainly the others of the first hundred (at least) knew something had happened between them (again), which was infuriating, or so he told himself.

They signed the thing in the same conference room they had hammered it out in, with Helmut doing the honors with a big smile, and each delegate coming up in turn, in penguin suit or black evening gown, to say a few words for the cameras and then put their hand to "the document," a gesture that only Frank seemed to see as bizarrely archaic, like scratching a petroglyph. Ridiculous. When it was his turn he went up and said something about striking a balance, which was exactly it; he had arranged the competing interests to strike together at angles that matched their

them, wandering down the big canalside tent with diversions up into the mesas, coming back down and crossing every canal bridge to cheers, and proceeding up to Princess Park for a great street party. The weather people had set for cool and crisp, with brisk downslope winds. Kites dueled under the tent roofs like raptors, their colors bright against the dark pink afternoon sky.

Frank found the party in the park unsettling, there were too many people watching him, too many who wanted to approach him and talk. That was fame: you talked to groups. So he turned around and walked back up the canalside tent.

Two parallel rows of white pillars ran down the sides of the canal; each pillar was a Bareiss column, semicircular at top and bottom but with the hemispheres rotated 180 degrees to each other. This simple maneuver created pillars that looked completely different depending on where you were when you looked at them, and the two rows of these pillars had a strange tumble-down look, as if they were already ruins, although the smoothness and whiteness of their diamond-coated salt belied that; they stood off the grass as white as sugar cubes, and gleamed as if wet.

Frank walked between the rows, touching each pillar in turn. Above them on each side the valley slopes rose to the window-walled bluffs of mesas. Massed greenery shone behind these cliffs of untinted glass, so that it looked as if the city were rimmed by enormous terrariums. A really elegant ant farm. The part of the valley slope under tenting was dotted with trees and tile roofs, and cut by broad grassy boulevards. The uncovered part was still a red rocky plain. A great number of buildings were just being finished, or still under construction; there were cranes everywhere rearing up toward the tent roofs, a kind of odd colorful skeletal statuary. Also scores of scaffolded buildings, so that Helmut had said the tented hillsides reminded him of Switzerland, no surprise since most of the construction was being done by Swiss. "They scaffold a house to replace a window box."

Sax Russell was standing at the foot of one of these scaffolded buildings, looking up at it critically. Frank turned and walked up a tube to him, said hello.

the total as high as possible.

"Real benefits can only be calculated using real costs," Frank said. "All the real costs. Terran economics never bothered to do that, but you're a scientist and you should. You have to judge the environmental damage from higher population and activity, as well as the benefits to terraforming that go along with it. Better to up the investment devoted to pure terraforming, rather than compromising and taking a percentage of a total that in some ways is working against you."

Sax twitched. "It's funny to hear you speak against compromise after the last four months, Frank. Anyway, I say it's better to up both the total and the percentage. The environmental costs are negligible. Managed right they can mostly be turned to benefits. An economy can be measured in terawatts or kilocalories, like John used to say. And that's energy. And we can use energy here in any form, even a lot of bodies. Bodies are just more work, very versatile, very energetic."

"Real costs, Sax. All of of them. You're still trying to play at economics, but it isn't like physics, it's like politics. Think what will happen when millions of displaced terran emigrants arrive here, with all their viruses, biological and psychic. Maybe they'll all join Arkady or Ann, ever thought of that? Epidemics, running through the mob's body and mind-they could crash your whole system! Look, hasn't the Acheron group been trying to teach you biology? You should pay attention! This isn't mechanics, Sax. It's ecology. And it's a fragile, managed ecology, so it has to be managed."

"Maybe," Sax said. It was one of John's mannerisms, that phrase. Frank missed what Sax was saying for a minute, then his attention was captured again:

". . . this treaty isn't going to make all that much difference anyway. The transnationals that want to invest will find a way. They'll make a new flag of convenience and it'll look like a country staking its claim here, exactly according to the treaty's quotas. But behind it will be transnational money. There'll be all kinds of that stuff happening, Frank. You know how it is. Politics, right? Economics, right?"

"Maybe," Frank said harshly, upset. He walked away.

situation. That's what I wanted to say. She clicked on and his pad went blank.

"Great," he said aloud. "I've got everyone on two worlds mad at me except Ann Clayborne." He laughed bitterly, took off walking.

Back down to the canal and the rows of Bareiss columns. Lot's wives. There were knots of celebrants scattered over the canalside sward, and in the late afternoon light their shadows were long. The sight took on a somehow ominous cast, and Frank turned, uncertain where to go. He didn't like the aftermath of things. Everything seemed finished, done, revealed as pointless. It was always this way.

A group of Terrans were standing under one of the more magnificent new office blocks in the Niederdorf tent. There was Andy Jahns among them.

If Ann was pleased, Andy would be furious. Frank walked up to him, wanting to witness that.

Andy saw him, and his face went still for a moment. "Frank Chalmers," he said. "What brings you down here?"

His tone was amiable, but his eyes were unamused, even cold. Yes, he was angry. Frank, feeling better every second, said "I'm just walking around, Andy, getting the blood flowing again. What about you?"

After the briefest of hesitations Jahns said, "We're looking at office space."

He watched as Frank digested the implications of the statement. His smile took on an edge, became a genuine smile. He went on: "These are friends of mine from Ethiopia, from Addis Ababa. We're thinking of moving our home office there next year. And so-" his smile broadened, no doubt in response to the look on Frank's face, which Frank could feel hardening over the front of his skull- "we have a lot to discuss."

Al-Qahira is the name for Mars in Arabic, and Malaysian, and Indonesian. The latter two languages got it from the former; look at a

ceaseless travel included the hunt for metals, archeology, and trade, but it seemed clear that the important thing was the travel, the life itself.

###

Frank Chalmers joined old Zeyk Tuqan's caravan a month after the treaty was signed, in the northern autumn of m-year 16 (July 2057). For a long time he wandered with this caravan over the broken slopes of the Great Escarpment. He worked on his Arabic, and helped with their mining, and took meteorological observations. The caravan was composed of actual Bedouins from Awlad 'Ali, the western coast of Egypt. They had lived north of the area that the Egyptian government had named the New Valley Project, after a search for oil discovered a water aquifer holding an amount equal to a thousand years of the Nile's flow. Even before the discovery of the gerontological treatment, the Egyptian population problem had been severe; with 96% of the country desert, and 99% of the population in the Nile Valley, it was inevitable that the hordes relocated in the New Valley Project would overwhelm the Bedouins and their entirely distinct culture. The Bedouins wouldn't even call themselves Egyptians, and despised the Nile Egyptians as spineless and immoral; but that did not keep the Egyptians from crowding north from the New Valley Project into Awlad 'Ali. Bedouins in the other Arab countries had taken the side of these overwhelmed outposts of their culture, and when the Arab commonwealth started a Mars program, and bought space on the continuous Earth-to-Mars shuttle fleet, they asked Egypt to give preference to their western Bedouins. The Egyptian government had been only too happy to oblige, and clear the region of its troublesome minority. So here they were, Bedouins on Mars, wandering the world-wrapping northern desert.

###

The weather observations piqued Frank's interest in climatology like none of the scientists' talk ever had. The weather on the Escarpment was often violent, with katabatic winds rushing downslope and colliding with the Syrtis trade winds to create tall fast red tornadoes, or onslaughts of gritty hail. Currently the atmosphere was at around 130 millibars in the summer,

The caravan was a mobile mining operation. Metals and ore-bearing minerals were being discovered in all kinds of locations and concentrations on Mars, but one thing the Arab prospectors were discovering was that a lot of sulfides were very lightly scattered on the great escarpment and the flats immediately below it. Most of these deposits were in concentrations and total quantities that would not justify the use of conventional mining methods, and so the Arabs were engaged in pioneering new extraction and processing procedures; they had built an array of mobile equipment, altering construction vehicles and exploration rovers to suit their purpose. The resulting machines were big, segmented, and distinctly insectile, looking like things out of a truck mechanic's nightmare. These creatures wandered the Great Escarpment in loose caravans, seeking the diffuse surface areas of stratiform copper deposits, preferably those with high amounts of tetrahedrite or chalcocite in them, so that they could recover silver as a byproduct of the copper. When they located one of these, they would stop for what they called the harvesting.

While they did this, prospector rovers would range ahead along the Escarpment, on expeditions of a week or ten days, following the old flows and rifts. When Frank had arrived he had been welcomed by Zeyk, who told him to do whatever work he chose; so Frank commandeered one of the prospector rovers, and took it out on solo expeditions. He would spend a week out, puttering around on automatic search, reading the seismograph and the samplers and the weather instruments, doing an occasional boring, watching the skies.

###

All over both worlds, Bedouin settlements looked drab from the outside; when they abandoned tents, their neighborhoods took on a windowless thick-walled look, as if perpetually hunched over to protect themselves from the desert heat. Only when you got inside their homes did one see what was protected, the courtyards, the gardens, the fountains, the birds, the staircases, the mirrors, the arabesques.

The Great Escarpment was strange country, cut by north-south canyon systems, marred by old craters, overrun by lava flows, broken into

channel. Sometimes in the silence of the mornings he would talk back to the TV. There was a part of him that was outraged at the stupidity of the media, and of the events they packaged. The stupidity of the human race, playing out its spectacle. Except that the vast bulk of humanity never appeared on video, never once in their lives, not even in the crowd scenes when a camera swept the mob. Back there the Terran past still lived on in enormous regions, where village life was plodding on as it always had. Maybe that was wisdom, held to by old wives and shamans. Maybe. But it was hard to believe, because look what happened when they gathered in cities. Idiots on video, history in the making. "One can say that the lengthening of human life must, by definition, be a great boon." These things made him laugh. "Haven't you ever heard of secondary effects, you asshole!"

One night he watched a report on the fertilization of the Antarctic Ocean with iron dust, which was to act as a dietary supplement to phytoplankton, a population that was shrinking at an alarming rate for no obvious reason. The iron dust was dumped out of planes, it looked like they were fighting some kind of submarine fire; the project would cost ten billion dollars a year, and would have to be continued in perpetuity, but it had been calculated that a century's worth of fertilization would reduce the global concentration of carbon dioxide by fifteen percent plus or minus ten percent, and given the ongoing warming and subsequent threat to the coastal cities, not to mention the death of most of the world's coral reefs, the project had been judged worth it. "Ann's going to love this," Frank muttered. "Now they're terraforming Earth."

Each vocal outburst he made untied a knot in his chest. He came to realize that no one was watching him, no one was listening. The tiny imaginary audience inside his head did not exist; no one watches our life movies. No friend or enemy would ever know what he did here, he could do whatever he liked and normalcy be damned. Apparently this was what he had been craving, what he had instinctively sought. He could go out and kick stones down the side of a karst for a whole afternoon; or cry; or write aphorisms in the sand; or scream abuse at the moons, careening

sense of how alien they were too. Oh, they were part of twenty-first century humanity, no doubt about it; they were sophisticated scientists and technicians, cocooned like everyone else in a protective shell of technology at every moment of their lives, and busy making and watching their own life movies. And yet they prayed three to six times a day, bowing toward Earth when it was the morning or evening star. And the reason their technocaravans gave them such great and obvious pleasure was because the caravans were an outward manifestation of this bending of the modern world to their ancient goals. "Man's work is to actualize God's will in history," Zeyk would say. "We can change the world in ways that help to actualize the divine pattern. It's always been our way: Islam says the desert does not remain desert, the mountain does not remain mountain. The world must be transformed into a semblance of the divine pattern, and that is what constitutes history in Islam. Al-Qahira gives us the same challenge as the old world, except in a purer form."

He would say these things to Frank as they sat around in his rover, in its tiny courtyard. These family rovers were transformed into private preserves, spaces that Frank was seldom invited into, and then only by Zeyk. Each time he visited he was surprised anew: the rover was nondescript from the exterior, big, with darkened windows, one of several parked in a bunch with walktubes between them. But then one ducked through a doorway and inside, and stepped into space filled with sunlight pouring down through skylights, illuminating couches and elaborate rugs, tiled floors, green-leafed plants, bowls of fruit, a window with the martian view tinted and framed like a photo, low couches, silver coffee urns, computer consoles of inlaid teak and mahogany, running water in pools and fountains. A cool wet world, green and white, intimate and small. Looking around Frank had the powerful sensation that rooms like this had existed for centuries, that the chamber would be instantly recognized for what it was by people living in the Empty Quarter in the tenth century, or across Asia in the twelfth.

Often Zeyk's invitations would come in the afternoon, when a group of men would convene in his rover for coffee and talk. Frank would sit in his

Frank on Bedouin ways, which allowed him to nod and ask questions, and occasionally to offer comments or criticism. "When you have a strong conservative streak in your society," Zeyk would say, "which detaches itself from the progressive streak, that's when you get the worst kinds of civil wars. As in the conflict in Columbia that they called La Violencia, for instance. A civil war that became a complete breakdown of the state, a chaos that no one could understand, much less control."

"Or like Beirut," said Frank innocently.

"No, no." Zeyk smiled. "Beirut was much more complex than that. It was not only civil war, but also a number of exterior wars impinging on it. It was not a matter of social or religious conservatives detaching from the normal progress of culture, as in Columbia or the Spanish Civil War."

"Spoken like a true progressive."

"All Qahiran Mahjaris are progressive by definition, or we would not be here. But Islam has avoided civil war by remaining a whole; we have a coherent culture, so that the Arabs here are still devout. This is understood even by the most conservative elements back home. We will never have civil war, because we are united by our faith."

Frank let his expression alone speak the fact of the Shiite heresy, among many other Islamic "civil wars." Zeyk understood the expression, but ignored it and forged on: "We all move together through history, one loose caravan. You could say that we here on Al-Qahira are like one of our prospecting rovers. And you know what a pleasure it is to be in one of those."

"So. . ." Frank thought hard about how to word his question; his inexperience with Arabic would only give him a certain amount of leeway before they got offended. "Is there really the idea of social progress in Islam?"

"Oh, certainly!" Several of them had replied in the affirmative, and were nodding still. Zeyk said, "Don't you think so?"

"Well. . . ." Frank let it pass. There still was not a single Arab democracy. It was a hierarchical culture with a premium put on honor and freedom; and for the many who were low down in the hierarchy, honor and

work again.

And that was their social progress.

##

The stratiform copper deposit that they had been raking up ran dry, and it was time for another ráhla, the movement of the hejra to the next site. They traveled two days, and arrived at another stratiform deposit that Frank had found. Frank went out again on another prospecting trip.

For days he sat in the driver's seat, feet on the dash, watching the land roll by. They were in a region of thulleya or little ribs, parallel ridges running downslope. He never turned on the TV anymore; there was a lot to think about. "The Arabs don't believe in original sin," he wrote in his lectern. "They believe that man is innocent, and death natural. That we do not need a saviour. There is no heaven or hell, but only reward and punishment, which take the form of this life itself and how it is lived. It is a humanist correction of Judaism and Christianity, in that sense. Although in another sense they have always refused to take responsibility for their destiny; it's always Allah's will. I don't understand that contradiction. But now they are here. And the Mahjaris have always been an intimate part of Arab culture, often its leading edge; Arabic poetry was revived in the twentieth century by poets who actually lived in New York or Latin America. Perhaps it will be the same here. It is surprising to find how much their vision of history corresponds to what Boone believed; I don't think either understood that at all. Very few people ever bother to find out what other people really think. They are willing to accept whatever they are told about anyone sufficiently distant."

He came on a find of porphyry copper, unusually dense, and with high concentrations of silver in it as well. That would be welcome. Copper and silver were both only somewhat scarce metals on earth, but silver was used in massive quantities in a great number of industries, and they were running low on easy sources of it. And here was more of it, right on the surface, in good concentrations; not as much as in Silver Mountain on the Elysium massif, of course, but the Arabs would not care. Harvest it, and then they would get to move again.

But then dreams began to plague him, dreams that were memories, intense and full and accurate, as if he were reliving his past while he slept. One night he dreamed of the day he had found out for sure that he would lead the American half of the first Martian colony. He had driven from Washington out to the Shenandoah Valley, feeling very odd. He walked for a long time in the great Eastern hardwood forest. He came on the the limestone caves at Luray, now a tourist attraction, and on a whim he took the tour. Every stalagtite and stalagmite was lit by lurid colored lights. Some had had mallets attached to them, and an organist could play them like the plates of a glockenspiel; the well-tempered cavern! He had to walk out into the peripheral blackness and stuff his sleeve in his mouth so the other tourists wouldn't hear him laugh.

Then he parked in a scenic overlook and walkd off into the forest, and sat down between the roots of a big tree. No one around, a warm fall night, the earth dark, and furry with trees. Cicadas cycling through their alien hum, crickets creaking their last mournful creaks, sensing the frost that would kill them. He felt so odd. . . could he really leave this world behind? Sitting there on the earth he had wished he could slide down a crack like a changeling and re-emerge something else, something better, something mighty, noble, long-lived-something like a tree. But nothing happened, of course; he lay on the ground, cut off from it already. A Martian already.

And he woke, and was disturbed all the rest of that day.

And then, even worse, he dreamed of John. He dreamed of the night he had sat in Washington and watched John on TV, stepping out onto Mars for the first time, closely followed by the other three. Frank left the official celebration at NASA and walked the streets, a hot D.C. night, summer of 2020. It had been part of his plan for John to make the first landing, he had given it to him as one sacrafices a queen in chess, because that first crew would be fried by the voyage's radiation, and according to the regs grounded for good on their return. And then the field would be cleared for the next trip out, for the colonists who would stay for good. That was the real game; and that was the one Frank planned to lead.

a game on Mars, Frank said in the Florida accent he had long ago eradicated.

"Have to move the hoop up, or they be breaking their heads."

"Sure, but think of the jumps. Twenty foot dunks, easy."

"Yeah even you white boys'll jump high there, or so you say. But you better leave the basket alone, or you got the same trouble you got here."

Frank laughed. But outside it was hot, a muggy DC summer night, and he walked home in a plummeting foul mood, blacker and blacker with every step; and coming upon one of Dupont's beggars, he pulled out a ten-dollar bill and threw it at the man, and as the bum reached for it Frank shoved him away shouting "Fuck you! Get a job!" But then people came up out of the Metro and he hurried off, shocked and furious. Beggars slumped in the doorways. There were people on Mars and there were beggars in the streets of the nation's capital, and all the lawyers walked by them every day, their freedom-and-justice talk no more than a cover for their greed. "We're gonna do it different on Mars," Frank said viciously, and all of a sudden he wanted to be there immediately, no careful years of waiting, of campaigning- "Get a fucking job!" he shouted at another homeless man. Then on to his apartment building, with its bored security team behind the foyer desk, people wasting their whole lives sitting there doing nothing. Upstairs his hands shook so hard that he couldn't at first get his door open; and once inside he stood frozen, horrified at the sight of all the bland executive's furniture, all of it a theater set, built to impress infrequent visitors, really just NASA and the FBI. None of it his. Nothing his. Nothing but a plan.

And then he woke up, alone, in a rover on the Great Escarpment.

###

Eventually he returned from this horrid expedition of dreams. Back in the caravan he found it hard to talk. He was invited to Zeyk's for coffee, and he swallowed a tablet of an opiate complex to relax himself in the company of men. In Zeyk's rover he sat in his spot, and waited for Zeyk to pass around little cups of clove-dosed coffee. Unsi Al-Khal sat on his left, speaking at length about the Islam vision of history, and how it had begun

women have different roles. Just as in the West. It is biological in origin.

Frank shook his head and felt the sensuous buzz of the tabs, the black weight of the past. The pressure on a permanent aquifer of disgust at the bottom of his thinking increased, and something gave, and suddenly he didn't care about anything and was sick of pretending he did. Sick of all pretense everywhere, the glutinous oil that allowed society to run on in its gnashing horrible way.

"Yes," he said, "but it's slavery, isn't it?"

The men around him stiffened, shocked by the word.

"Isn't it?" he said, helplessly feeling the words bubble up out of his throat. "Your wives and daughters are powerless, and that is slavery. You may keep them well, and they may be slaves with peculiar and intimate powers over their masters, but the master-slave relationship twists everything to it. So that all these relations are twisted, pressured to the bursting point."

Zeyk's nose was wrinkled. "This is not the lived experience of it, I can assure you. You should listen to our poetry."

"But would your women assure me?"

"Yes," Zeyk said with perfect confidence.

"Maybe. But look, the most successful women among you are modest and deferent at all times, they are scrupulous in honoring the system. Those are the ones that aid their husbands and sons to rise in the system. So to succeed, they must work to enforce the same system that subjugates them. This is poisonous in its effects. And the cycle repeats itself, generation after generation. Supported by both masters and slaves."

"The use of the word slaves," Al-Khal said slowly, and paused. "Is offensive, because it presumes judgement. Judgement of a culture you do not really know."

"True. I only tell you what it looks like from the outside. This can only be of interest to a progressive Moslem. Is this the divine pattern you are struggling to actualize in history? The laws are there to read, and to watch in action, and to me it looks like a form of slavery. And, you know, we fought wars to end slavery. And we excluded South Africa from the

can against it. That's how humans are. And in this case it is your mother, your wife, your sisters, your daughters."

Now the men were glaring at him, still more shocked than offended; but Frank stared at his coffee cup, and went on regardless. "You must free your women."

"How do you suggest we do this?" Zeyk said, looking at him curiously.

"Change your laws! Educate them in the same schools you educate your sons. Make them the equal in rights to any Moslem of any kind anywhere. Remember, there is much in your laws that is not in the Koran, but was added in the time since Mohammed."

"Added by holy men," Al-Khal said angrily.

"Certainly. But we choose the ways we enforce our religious beliefs in the behavior of daily life. This is true of all cultures. And we can choose new ways. You must free your women."

"I do not like to be given a sermon by anyone but a mullah," Al-Khal said, mouth tight under his moustache. "Let those who are innocent of crime preach what is right."

Zeyk smiled cheerily. "This is what Selim el-Hayil used to say," he said.

And there was a deep, charged silence.

Frank blinked. Many of the men were smiling now, looking at Zeyk with appreciation. And it came to Frank in a flash that they all knew what had happened in Nicosia. Of course! Selim had died that night just hours after the assassination, poisoned by a strange combination of microbes; but they knew anyway.

And yet they had accepted him, taken him into their homes, into their private enclosures where they lived their private lives. They had tried to teach him what they believed.

"Perhaps we should make them as free as Russian women," Zeyk said with a laugh, extricating Frank from the moment. "Crazed by overwork, don't they say? Told they are equal, but actually not?"

Yussuf Hawi, a high-spirited young man, leered and cackled: "Bitches, I can tell you! But no more or less than any other woman! Isn't it true that in

content, this was a basic law of diplomacy. Out on the Escarpment he had forgotten that.

Disturbed, he went out in a prospector again. The dreams became less frequent. When he came back in, he did not take any drugs. He sat silently in the coffee circles, or spoke about minerals and groundwater, or the comfort of the newly-modified prospecting rovers. The men regarded him cautiously, and only included him in the conversation again because of Zeyk's friendliness, which never flagged-except for that one moment, when he had most effectively reminded Frank of one of the basic facts of the situation.

One night Zeyk invited him over for a dinner with Zeyk and his wife Nazik only. Nazik wore a long white dress cut in the traditional Bedouin style, with a blue waist band and bare-headed, her thick black hair drawn back into a flat comb and then left to fall down her back. Frank had read enough to know that this was all wrong; among the Bedouin of the Awlad 'Ali, women wore black dresses and red sashes, to indicate their impurity, sexuality, and moral inferiority; and they kept their heads covered, and used the veil in an elaborate hierarchical code of modesty. All in deference to male power; so that Nazik's clothes would be deeply shocking to her mother and grandmothers, even if she was, as now, wearing them before an outsider who didn't really matter. But if he knew enough to understand, then it was a sign.

And then at one point, when they were all laughing, Nazik rose at Zeyk's request to get them dessert, and she said to Zeyk with a laugh, "Yes, master."

Zeyk scowled and said "Go, slave," and took a swipe at her, and she snapped her teeth at him. They laughed at Frank's fierce blush, and saw that he understood: they were mocking him, and also breaking the Bedouin taboo against showing marital affection of any kind, to anyone. Nazik came over and put her fingertip on his shoulder, which shocked him further. "We are only joking with you, you know," she said. "We women heard about your declaration to the men, and we love you for it. You could have as many wives among us as an Ottoman sultan. Because there is

On yes. Perhaps not where you can see us much. There are still some-habits, customs. We are reclusive, separate, we have our own world-it is perhaps not good. We Bedu tend to group together, men and women. We have our traditions, you see, and they endure. But there is much that is changing here, changing fast. So that this is the next stage of the Islamic way. We are. . ." She searched for the word.

"Utopia," Zeyk suggested. "The Moslem utopia."

She wagged a hand doubtfully. "History," she said. "The hadj to utopia."

Zeyk laughed with pleasure. "But the hadj is the destination," he said. "That is what the mullahs always teach us. So we are already there, no?" And he and his wife smiled at each other, a private communication with a high density of information exchange, a smile which they shared, for a moment, with Frank. And their talk veered elsewhere.

###

In practical terms Al-Qahira was the pan-Arab dream come alive, as all the Arab nations had contributed money and people to the Mahjaris. The mix of Arab nationalities on Mars was complete, but in the individual caravans it separated out a bit. Still, they mixed; and whether they came from the oil-rich nations or the oil-poor ones didn't seem to matter. Here among the foreigners they were all cousins. Syrians and Iraqis, Egyptians and Saudis, Gulf Staters and Palestinians, Libyans and Bedouins. All cousins here.

###

Frank began to feel better. He slept deeply again, refreshed by the timeslip in every day, a little slack in the circadian rhythm, the body's own time off. Indeed all life in the caravan had an altered duration, as if the moment itself had dilated; he felt there was time to spare, that there was never a reason to hurry.

And the seasons rolled by. The sun set in almost the same spot every night, shifting ever so slowly; they lived entirely by the martian calendar now, it was the only new year they noticed or celebrated: $L_s=0$, the start of northern spring, of the year 17. Season after season, each six months

naturally adjust toward homeostasis, don't you think? I wonder if Sax shouldn't have first made things so much colder that the whole atmosphere froze out onto the surface. How thick would it be, a centimeter? Then line up our harvesters pole to pole, and run them around the world like latitude lines, processing the carbon dioxide into good air and fertilizer. Ha, can't you see it?"

Frank shook his head. "Sax probably considered it, and rejected it for some reason we don't see."

"No doubt."

###

The snow sublimed away, the red land returned, they traveled on their way. Occasionally they passed nuclear reactors, standing like castles on the top of the Escarpment; not just Rickovers but giant Westinghouse breeders, with frost plumes like thunderheads. On Mangalavid they saw programs about a fusion prototype in Chasma Borealis.

Canyon after canyon. They knew the land in a way that even Ann didn't; every part of Mars interested her equally, so she could not have this focused knowledge of a single region, this way they had of reading it like a story, following its leads through the red rock to a patch of blackish sulfides, or the delicate cinnabar of mercury deposits. They were not so much students of the land as lovers of it; they wanted something from it. Ann, on the other hand, asked for nothing but answers. There were so many different kinds of desire.

Days passed, and then more seasons. When they ran into other Arab caravans they celebrated long into the night, with music and dance, coffee and hookahs and talk, in meeting tents covering an octagon of parked rovers. Their music was never recorded, but played with great facility on flutes and electric guitars, and mostly sung, in quarter-tones and wails so strange to Frank's ear that for a long time he couldn't tell if the singers were accomplished or not. The meals lasted hours, and afterwards they talked till dawn, and made a point of going out to watch the furnace blast of sunrise.

###

him like nets filled with coelacanths, Frank ignored all the little mental explosions, and asked question after question, concentrating on the black and Latino and redneck faces that answered him. He saw that this group was imitating an earlier form of community just like the Arabs did; this was a wildcat oil field crew, enduring harsh conditions and long hours for big paychecks, all saved for the return to civilization. It was worth it even if Mars sucked, which it did. "I mean even on the Ice you can go outside, but here, fuck."

They didn't care who Frank was, and as he sat among them listening they told stories to each other that astonished him even though they were somehow deeply familiar. "There was twenty-two of us prospecting with this little mobile habitat with no rooms to it, and one night we got to partying and took all our clothes off, and all the women got in a circle on the floor with their heads in the middle, and the guys went in a circle around the outside, and there were twelve guys and ten gals so the two guys out kept the rotation going pretty fast, and we actually got all the way around the circle in the timeslip. We tried to all come at once at the end of the timeslip and it worked pretty good, once a few couples got going it was like a whirlpool and it sucked everyone down into it. Felt so good."

And then, after the laughter and the shouts of disbelief: "We was killing and freezing these hogs in Acidalia, and those humane killers are like shooting a giant arrow into their heads so we figured why not kill and freeze them both at once and see what happens. So we got them all handicapped, and bet on which ones would get the furthest, and we open the outer lock door and those pigs all dash out outside and wham, they all keeled over inside of fifty yards of the door, except for one little gal that got almost two hundred yards, and froze standing upright. I win a thousand dollar on that hog."

Frank grinned at their howls. He was back in America. He asked them what else they had done on Mars. Some had been building nuclear reactors up on top of Pavonis Mons, where the space elevator would touch down. Others had worked on the water pipe running up eastern Tharsis bulge from Noctis to Pavonis. The parent transnational for the elevator,

below Overlook. They've tapped an aquifer there and there's fountains all over town, statues in the fountains, waterfalls, canals, ponds, swimming pools, you name it, it's a little Venice up there. Great thermal retention too."

The conversation removed itself to the gym, which was well-stocked with machines designed to enable their users to stay Earth-ready. "He's buffed, look at that, must be short time." Almost everyone kept to a rigorous workout schedule, three hours a day minimum. "If you give up you're stuck here, right? And then what good is that savings account?"

"Eventually it'll be legal tender," another one of them said. "Where people go, the American dollar is sure to follow."

"You got it backwards, assbite."

"As we are the proof of."

Frank said, "I thought the treaty blocked the use of Terran money here?"

"The treaty's a fucking joke," said one doing lat pulls.

"Dead as Bessy the Long Distance Hog."

They stared at Frank, all of them in their twenties and thirties, a generation he had never talked to much; he didn't know how they had grown up, what had shaped them, what they might believe. The oh-so-familiar accents and faces might be deceptive, in fact probably were. "You think so?" he asked.

Some of them seemed more aware than the rest that he might be connected to the treaty, along with all his other historical associations. But the man doing lat pulls was oblivious: "We're here on a deal that the treaty says is illegal, man. And it's happening all over. Brazil, Georgia, the Gulf States, all the countries that voted against the treaty are letting the transnats in. It's a contest among the flags of convenience as to how convenient they can be! And UNOMA is flat on its back with its legs spread, saying More, more. Folks are landing by the thousands and most are employed by transnats, they've got their government visas and five year contracts, including rehab time to get you Earth buffed, things like that."

"By the thousands?" Frank said.

Arkady Bogdanov:

From flat on his back this man met Frank's gaze; a tall, broad-shouldered black man with an aquiline nose. He said, "They get up here and the company tries to look good, gyms and good food and rec time and all, but what it comes down to is them telling you everything you can do and can't do, it's all scheduled, when you wake up, when you eat, when you shit, it's like the Navy has taken over Club Med, you know? And then here comes your bro Arkady, saying to us, You're Amurricans, boys, you got to be free, this Mars is the new frontier, and you should know some of us are treating it that way, we ain't no robot software, we're free men, making our own rules on our own world! And that's it, man!" The room crackled with laughter, everyone had stopped to listen: "That does the trick! Folks get up here and they see they're schedule software, they see they can't keep Earth-buffed without they spend their whole time in here sucking the air hose, and even then I spect it's impossible, they lied to us I'll bet. So the pay means nothing, really, we're all software and maybe stuck here for good. Slaves, man! Fucking slaves! And believe you me, that's pissing a lot of folk off. They're ready to strike back, I mean to tell you. And that's the folks who are disappearing. Gonna be a whole lot of them before it's all over."

Frank stared down at the man. "Why haven't you disappeared?"

The man laughed shortly and began pumping weights again.

"Security," someone else called from the Nautilus machine.

Military Press disagreed. "Security's lame-But you got to have-Somewhere to go. Soon as Arkady shows-Gone!"

"One time," Bench Press said, "I saw a vid of him where he talked about how folk of color are better suited for Mars than white folk, how we do better with the UV."

"Yeah! Yeah!" They were all laughing at that, both skeptical and amused at once.

"It's bullshit, but what the hell," Bench Press said. "Why not? Why not? Call it our world. Call it Nova Africa. Say no boss is gonna take it away from us this time." He was laughing again, as if everything he had said was

hundred he needed to be out there wandering around. It wouldn't have lasted much longer, but when Frank called Washington directly the President was pleased, and in Burroughs the exhausted-looking Slusinski looked happy indeed. In fact the whole Burroughs office sounded pleased that he planned to come back, which surprised Frank quite a bit. When he had left Burroughs, disgusted at the treaty and depressed about Maya, he had been, he thought, a bastard of a boss. But here they had covered for him for almost two years, and seemed happy to hear he was coming back. People were strange. The aura of the first hundred, no doubt. As if that mattered.

###

So Frank returned from his final prospecting trip and sat that evening in Zeyk's rover, sipping his coffee, watching them talk, Zeyk and Al-Khan and Yussuf and the rest, and, wandering in and out of the room, Nazik and Aziza. People who had accepted him; people who in some sense understood him. By their code he had done the necessary things. He relaxed in the flow of Arabic, still and always awash with ambiguity: lily, river, forest, lark, jasmine, words that might refer to a waldo hand, a pipe, a kind of talus, robot parts; or perhaps just to lily, river, forest, lark, jasmine. A beautiful, beautiful language. The speech of the people who had taken him in, and let him rest. But he would have to leave.

They had arranged things so that if you spent half the year in Underhill you were assigned a permanent room of your own. Towns all over the planet were adopting similar systems, because people were moving around so much that no one felt at home anywhere, and this arrangement seemed to mitigate that. Certainly the first hundred, who were among the most mobile Martians of all, had started spending more time in Underhill than they had in the years before, and this was mostly a pleasure, to most of them. At any given time twenty or thirty would be around, and others came in and stayed for a while between jobs, and in the constant come and go

but that's the way people were. Another vestige of the savannah. They lived like monkeys still, while their new god powers lay around them in the weeds.

Slusinski came in. Though his accent was pure New York, Frank had always called him Jeeves, because he looked like the actor in the BBC series. "We're like dwarves in a waldo," Frank said to him angrily. "One of those really big waldo excavators. We're inside it and supposed to be moving a mountain, and instead of using the waldo capabilities we're leaning out of a window and digging with teaspoons. And complimenting each other on the way we're taking advantage of the height."

"I see," Jeeves said carefully.

But there was nothing to be done about it. He was back in Burroughs, hurrying around, four meetings an hour, conferences that told him what he already knew, which was that UNOMA was now using the treaty for toilet paper. They were approving accounting systems which guaranteed that mining would never show any profits to distribute to the general assembly members, even after the elevator was working. They were handing out "necessary personnel" status to thousands of emigrants. They were ignoring the various local groups, ignoring MarsFirst. Most of this was done in the name of the elevator itself, which provided an endless string of excuses, thirty-five thousand kilometers of excuses, a hundred and twenty billion dollars of excuses. Which was not all that expensive, actually, compared to the military budgets of the past century-less than a year of the global military budget of those days, in fact, and most of the elevator funds had been needed in the first years of finding the asteroid and getting it into proper orbit, and setting up the cable factory. After that the factory ate the asteroid and spit out the cable, and that was that; they only had to wait for it to grow long enough, and nudge it down into position. A bargain, a real bargain!

And also a great excuse for breaking the treaty whenever it seemed expedient. "God damn it," Frank shouted at the end of a long day in the first week back. "Why has UNOMA caved like this?"

then nearby countries were howling for fear of being overwhelmed-another monkey fear, but there it was. Meanwhile Australia, New Zealand, Scandanavia, Azania, the United States, Canada, and Switzerland had all proclaimed immigration illegal. While India was growing by eight percent a year. Famine would solve that, as it would in a lot of countries. The Four Horsemen were good at population control. Until then. . . . the TV cut to an ad for a popular diet fat, which was indigestible and went right through the gut unchanged. "Eat all you want!"

Janet clicked off the TV. "Let's change the subject."

They sat around their table and stared at their plates. It turned out Vlad and Ursula had come from Acheron because there was an outbreak of resistant tuberculosis in Elysium. "The cordon sanitaire has fallen apart," Ursula said. "Some of the emigrant viruses will surely mutate, or combine with one of our tailored systems."

Earth again. It was impossible to avoid it. "Things are falling apart down there!" Janet said.

"It's been coming for years," Frank said harshly, his tongue loosened by the faces of his old friends. "Even before the treatment life expectancy in the rich countries was nearly double that in the poor. Think about that! But in the old days the poor were so poor they hardly knew what life expectancy was, the day itself was their whole concern. Now every corner shop has a TV and and they can see what's happening-that they've got AIDS while the rich have the treatment. It's gone way beyond a difference in degree, I mean they die young and the rich live forever! So why should they hold back? They've got nothing to lose."

"And everything to gain," Vlad said. "They could live like us."

They huddled over cups of coffee. The room was dim. The pine furniture had a dark patina; stains, nicks, fines rubbed in by hand. . . . It could have been one of those nights in that distant time when they were the only ones in the world, a few of them up later than the rest, talking. Except Frank blinked and looked around, and saw in his friends' faces the weariness, the white hair, the turtle faces of the old. Time had passed, they were scattered over the planet, running like he was, or hidden like

She's pretty mad at you.

"Mad at me?"

"Sure." She regarded him across the dim, faintly humming room. "You must have known that."

While he was still considering how open to be with her, he said "No! Why should she be?"

"Oh Frank," she said. She leaned forward in her chair. "Quit acting like you've got a stick up your ass! We know you, we were there, we saw it all happen!" And as he was recoiling she leaned back, and said calmly, "You must know that Maya loves you. She always has."

"Me?" he said weakly. "It's John she loved."

"Yeah, sure. But John was easy. He loved her back, and it was glamorous. It was too easy for Maya. She likes things hard. And that's you."

He shook his head. "I don't think so."

Janet laughed at him. "I know I'm right, she's told me as much! Ever since the treaty conference she's been angry at you, and she always talks when she's mad."

"But why is she angry?"

"Because you rejected her! Rejected her, after pursuing her for years and years, and she got used to that, she loved it. It was romantic, the way you persisted. She took it for granted, sure, but she loved you for it. And she liked how powerful you were. And now John is dead, and she could finally say yes to you, and you sent her packing. She was furious! And she stays mad a long time."

"This. . . ." Frank struggled to collect himself. "It just doesn't match with my understanding of what's happened."

Janet stood up to go, and as she walked by him she patted him on the head. "Maybe you ought to talk to Maya about it then." She left.

For a long time he sat there, feeling stunned, examining the shiny grain of his chair arm. It was hard to think. Eventually he stopped trying and went to bed.

###

coast of Madagascar. The sun bronzing the ocean below.

Everything looks so fine from up here.

Get any closer and you begin to see too much, Frank murmured.

Or not enough.

It was cold, they argued over the temperature, John was from Minnesota and had slept as a boy with his window open. So Frank shivered, a down coverlet draped over his shoulders, his feet blocks of ice. They played chess and Frank won. John laughed. How stupid, he said.

What do you mean?

Games don't mean anything.

Are you sure? Sometimes life seems like a kind of game to me.

John shook his head. In games there are rules, but in life the rules keep changing. You could put your bishop out there to mate the other guy's king, and he could lean down and whisper in your bishop's ear, and suddenly it's playing for him, and moving like a rook. And you're fucked.

Frank nodded. He had taught these things to John.

A confusion of meals, chess, talk, the view of the rolling Earth. It felt like the only life they had ever lived. The voices from Houston were like Als, their concerns absurd. The planet itself was so beautiful, so intricately patterned by its land and its clouds.

I never want to go down. I mean this is almost better than Mars'll be, don't you think?

No.

Huddled, shivering, listening to John talk of boyhood. Girls, sports, dreams of space. Frank responded with tales of Washington, lessons from Machiavelli, until it occurred to him that John was formidable enough as it was. Friendship was just diplomacy by other means, after all. But later, after a vague blur. . . talking, halting, shivering, talking about his father, coming home drunk from the Jacksonville bars, Priscilla and her white blond hair, her fashion magazine face. How it meant nothing to him anymore, a marriage for the resumé, for looking normal to the shrinks without holding him down. And not his fault. Abandoned, after all. Betrayed.

After breakfast he clicked his fork on the table, thinking. All that day he spent distracted, wandering as if still in a dream, wondering from time to time how one told the difference. Wasn't this life dreamlike in every significant respect? Everything overlit, bizarre, symbolic of something else?

That evening he went looking for Maya, feeling helpless, in the grip of a compulsion. The decision had been made the night before, when Janet said "she loves you, you know." And he turned a corner to the dining commons and there she was, her head thrown back in the middle of her pealing laugh, vividly Maya, her hair as white as it had once been black, her eyes fixed on her companion; a man, dark-haired, handsome, perhaps in his fifties, smiling at her. Maya put a hand to his upper arm, a characteristic gesture, one of her usual intimacies, it meant nothing and in fact indicated that he was not her lover but rather someone she was in the process of enchanting; they could have met just minutes before, although the look on his face indicated he knew her better than that.

She turned and saw Frank, blinked with surprise. She looked back at the man and continued to speak, in Russian, her hand still on his arm.

Frank hesitated and almost turned and left. Silently he cursed himself; was he no more than a schoolboy, then? He walked by them and said hello, did not hear if they replied. All through the dinner she stayed glued to the man's side, not looking his way, not coming over. The man, pleasant-enough looking, was surprised at her attention, surprised but pleased. Clearly they would leave together, clearly they would spend the night together. That foreknowledge always made people pleasant. She would use people like that without a qualm, the bitch. Love. . . . The more he thought about it the angrier he got. She had never loved anyone but herself. And yet. . . that look on her face when she first saw him; for a split second hadn't she been pleased, and then wanted him angry at her? And wasn't that a sign of hurt feelings, of a desire to hurt back, meaning a certain (incredibly childish) desire for him?

towers, and a continuous litter of stations, loading tracks, warehouses, and dumps. And then, on the last and steepest upcurve of the volcano's cone, there was a vast congregation of tents and industrial buildings, thicker and thicker until up on the broad rim they were everywhere, and between them immense fields of insolation capture sheets, and receivers for the energy microwaved down from the orbiting solar panels. Each tent along the way was a little town, stuffed with little apartment blocks; and each apartment block was stuffed with people, their laundry hanging from every window. The tents nearest the piste had very few trees in them, and looked like commercial districts; Frank caught quick glimpses of food stands, video rentals, open-front gyms, clothing stores, laundromats. Litter piled in the streets.

###

Then he was into the train station on the rim, and out of the train and into the spacious tent of the station. The south rim had a tremendous view over the great caldera, an immense, nearly circular hole, flawless except for a single giant scoop bursting out of the rim to the northeast. This scoop formed a great gap across the caldera from the station, the mark of a truly huge sideways explosion. But that was the only flaw in the design; otherwise the cliff was regular, and the floor of the caldera was almost perfectly round, almost perfectly flat. And sixty kilometers across, and a full five thousand meters deep. Like the start of the mohole to end all moholes. The few signs of human presence on the caldera floor were on an ant's scale, almost invisible from the rim.

The equator ran right across the southern rim, and that was where they were going to secure the lower end of the elevator. The attachment point was obvious; it was a massive tan and white concrete blockhouse, located a few kilometers west of the big tent town around the train station. Running west along the rim beyond the blockhouse was a line of factories and earthmovers and cones of feedstock materials, all gleaming with photographic clarity in the clear dustless thin high air, under a sky that was a kind of plum black. There were a number of stars near the zenith that were visible by day.

among them from the plum sea surface—a fishing line tied to a bright conchoidal lure, in the process of snagging on a bottom wreck. His blood burned in his throat, and he had to look down and breathe deep. Very peculiar.

They toured the base complex. The gantry that had captured the leader line was located inside a big hole in the concrete block, a concrete crater with a thick ring of a rim. The walls of this concrete crater were studded by curved silver columns, which held magnetic coils that would fix the cable butt in a shock-cushioning collar. The cable would float well off the concrete floor of the chamber, suspended there by the pull of the outer half of the cable; an exquisitely balanced orbit, an object extending from a moonlet down into this room, thirty-seven thousand kilometers in all. And only ten meters across.

With the leader line secured, the cable itself could be guided down fairly easily; but not rapidly, as it had to drift down into its final orbit very gently indeed, in an asymptotic approach. "It's going to be like Zeno's paradox," Slusinski said.

So it was many days after that visit when the butt of the cable finally appeared in the sky, and hung there. Over the next few weeks it descended ever more slowly, always there in their sky. A very odd sight indeed; it gave Frank a touch of vertigo, and every time he saw it the image of standing on an ocean floor returned to him. They were looking up at a fishing line, a black thread hanging down from the plum sea surface.

###

Frank spent this time setting up the head Department of Mars offices in the town, which one day was christened Sheffield. The Burroughs staff protested the move, but he ignored them. He spent his time meeting with American executives and project managers, all at work on various aspects of the elevator or Sheffield, or the outlying Pavonis towns. Americans represented only a fraction of the workforce on hand, but Chalmers was kept busy nevertheless, because the overall project was so huge. And Americans appeared to be dominating the superconducting, and the software involved with the actual elevator cars, a coup that was worth

Amiscol, and Subarashii.

###

Eventually the day came when the cable was going to touch down. A giant crowd gathered in Sheffield to see it; the train station concourse was jammed to well over capacity, as it had a good view along the rim to the base complex, popularly referred to as the Socket.

As the hours passed, the end of the black column drifted downward, moving more and more slowly as it approached its target. There it hung, not that much bigger than the leader line guiding it down; smaller in fact than the business end of an Energia rocket. It stood up into the sky perfectly vertically, but it was so thin and the foreshortening was so severe that it looked not much longer than a tall skyscraper. A very skinny tall skyscraper, walking on air. A black tree trunk, taller than the sky. "We ought to be right under it, down on the floor of the socket," one of his staff said. "There'd be headroom when it stops, right?"

"Magnetic field might scramble you a bit," Slusinski replied, never taking his gaze from the sky.

As it got closer they saw that the cable was knobbed with various protrusions, and filigreed with silver lines. The gap under it got smaller. Then the end of it disappeared into the base complex, and the seashell roar of the crowd in the concourse grew louder. People watched the TVs closely; cameras inside the socket showed the cable come to a slow halt, still ten meters above the concrete floor. After that came the tweezerlike movement of gantries, and the clamping of a physical collar around the cable, a few meters up from its end. Everything happened in dreamlike slow motion, and when it was done it looked like the round socket room had suddenly gained an ill-fitting black roof.

Over the loudspeaker system a woman's voice said, "The elevator is secured." There was a brief cheer. People moved away from the TVs and looked out the tent walls again. Now the object looked much less strange than it had when hanging out of the sky; now it was nothing more than the *reductio ad absurdum* of Martian architecture, a very slender, very tall

direction, like parasites on a strand of hair. And a few months after that, you could take an elevator into orbit. And you could take another elevator down out of orbit, to the surface.

And down they came, transported from Earth by the fleet of continuous shuttles, those big spaceships that boomed around the Earth-Venus-Mars system, using the three planets and Luna as gravity handles, fielding madly accelerating ferry packets from Earth and Mars. Each of the thirteen operating ships held a thousand people, and they were full every trip out. So there was a continuous stream of people docking on Clarke, descending in elevator cars, and debarking in the socket. And then pouring into Sheffield's concourses, wild and unsteady and bug-eyed with gawking, as they were herded with some difficulty to the train station, and onto trains outbound. Most of these trains then emptied their loads into the Pavonis tent towns; robot crews were building the tents just fast enough to house the influx, and the completion of two new pipelines had secured the water supply on Pavonis, which was being pumped up from the Compton Aquifer beneath Noctis Labyrinthus. So the emigrants settled in.

And back in the socket, on the other side of the cable, upbound elevator cars were being loaded with refined metals, platinum, gold, uranium, silver; and then the cars swung in and locked onto the piste, and up they rose again, accelerating slowly to their full speed of three hundred kilometers an hour. Five days later they arrived at the top of the cable, and decelerated into locks inside the ballast asteroid Clarke, now a much-tunneled chunk of carbonaceous chondrite, so filigreed with exterior buildings and interior chambers that it seemed more a spaceship or a city than Mars's third moon. It was a busy place; there was a continuous procession of incoming and outgoing ships, and crews perpetually in transit, as well as a large force of local traffic controllers, using some of the most powerful AIs in existence. Though most of the operations involving the cable were computer controlled and robotically accomplished, entire human professions were springing up to direct and oversee all these efforts.

just gangs, it's just extortion! I can't even give you my name or our security might found out I came here! I mean I believe in the black economy as much as the next guy, but this is crazy! This isn't what we came here for."

Frank paced his office, seething. These kinds of allegations were clearly true, but difficult to verify without a security team of one's own, a big police force in fact. When the man left, he grilled his staff, but they could tell him nothing new, which made him even angrier. "You're paid to find these things out for me, that's your jobs! What are you doing sitting around in here all day watching Terran news!"

He cancelled a day's appointments, thirty-seven meetings in all. "Lazy incompetent bastards," he said loudly as he stalked out the door. He went to the train station and caught a local downslope to have a look for himself.

The local train now stopped every kilometer of the descent, in small stainless steel locks that served as stations for the tent towns. He got out in one; signs in the lock identified it as El Paso. He walked through the open doors of the passage lock.

At least these tents had a view, there was no denying that. Down the great eastern slope of the volcano ran the train piste and the pipelines, and on either side of them tent after tent, like blisters. The clear fabric of the older ones upslope was already turning a bit purple. Ventilators hummed loudly from the physical plant next to the station, and from somewhere a hydrazine generator was adding its high hum. People were conversing in Spanish and English. Frank called his office and got them to ring the apartment of a man from El Paso who had dropped in to complain; the man answered, and Frank arranged to meet him at a cafe next to the station, then walked over and sat at an outer table. Men and women sat around tables eating and talking like anywhere else. Little electric cars hummed up and down the narrow streets, most piled high with boxes. The buildings near the station were three stories tall and appeared prefab, steel-reinforced concrete painted bright blue and white. There was a line of young trees in tubs running away from the station down the main thoroughfare. Small groups sat on the astroturf, or walked aimlessly from shop to shop, or hurried with shoulderbags and daypacks toward the

rows of what turned out to be Agee huts, which had been designed for temporary shelter in the outlands: research outposts, or water stations, or refugee huts. Now lined up by the score. The slope of the volcano had been hastily graded, and a lot of the huts were on a two or three degree slope, so that they had to be careful in the kitchens, they said, and make sure to align their beds properly.

Frank asked them what they did. Stevedores in Sheffield, most replied; offloading the elevator cars and getting the stuff on trains. Robots were supposed to do it, but it was surprising how much labor remained in the process for human muscle. Heavy equipment operations, robot programmers, machine repairmen, waldo dwarves, construction workers. Most of them had rarely gotten out onto the surface; some of them never had. They had done similar kinds of work back home, or had been unemployed. This was their chance. Most wanted to return to Earth someday, but the gyms were crowded and expensive and time-consuming, and they were all losing their tone. They had southern accents that Frank hadn't heard since childhood; it was like hearing voices from a previous century, like listening to Elizabethans. Did people still talk that way? TV never revealed it. "Y'all been here so long you don't mind being indoors, but I can't stand it." Ah caint stayun det.

Frank glared into a kitchen. "What do you eat?" he demanded.

Fish, vegetables, rice, tofu. It all came in bulk packages. They had no complaints; they thought it was good. Americans, the most degraded palates in history. Somebody gimme a cheeseburger! No, what they minded was the confinement, the lack of privacy, the teleoperation, the crowding together. And the resulting problems: "All my stuff got stole the day after I got here." "Me too." "Me too." Theft, assault, extortion. The criminals all came from other tent towns, they said. Russians, they said. White folks with strange talk. Some black folks too, but not so many here as at home. A woman had been raped the previous week. "You're kidding!" Frank said.

"What do you mean you're kidding," one woman said, disgusted at him.

to jump out of his way as he paced. Once he stopped and looked around at the crowd; there were perhaps five hundred people in view at that moment, living their lives. When had it gotten like this? They had been a scientific outpost, a handful of researchers, scattered over a world with as much land surface as the Earth: a whole Eurasia, Africa, America, Australia, and Antarctica, all for them. All that land was still out there, but what percentage of it was under tents and habitable? Much less than one percent. And yet what was UNOMA saying? A million people here already, with more on the way. And so police, and crime-or rather, crime without police. A million people and no law, no law but corporate law. The bottom line. Minimize expenses, maximize profits. Run smoothly on ball bearings.

###

The next week a set of tents on the south slope went on strike. Chalmers heard about it on his way to the office, Slusinski actually breaking in on his walk with a call. The striking tents were mostly American, and his staff was in a panic. "They've closed the stations and aren't allowing anyone off the trains, so they can't be controlled unless their emergency locks are stormed-"

"Shut up."

Frank went down the south piste to the striking tents, ignoring Slusinski's objections. In fact he ordered several of the staff down to join him.

A team from Sheffield security was standing in the station, but he ordered them to get on the train and leave, and after a consultation with the Sheffield administrators, they did. At the passage lock he identified himself, and asked to come in alone. They let him through.

He emerged in the main square of another tent, surrounded by a sea of angry faces. "Kill the TVs," he suggested. "Let's talk in private."

They killed the TVs. It was the same as in El Paso, different accents but the same complaints. His earlier visit gave him the ability to anticipate what they were going to say, to say it before they did. He watched grimly as

He paused to get control of himself, relax his jaw. Meanwhile, get back to work! It'll pass the time better than sitting around cooped up in here, and it'll make you points for the negotiation. And if you don't, they'll maybe just cut off your food and make you. Better to do it of your own free will, and look like rational negotiators."

So the strike ended. They even gave him a ragged round of applause when he went back out into the station.

He got on the train in a blinding fury, refusing to acknowledge any of his staff's questions or their mute looks of idiot inquiry, and savaging the head of the security team, who was an arrogant fool: "If you corrupt bastards had any integrity this wouldn't have happened! You're nothing but a protection racket! Why are people getting assaulted in the tents? Why are they paying protection, where are you when all this is happening!"

"It's not our jurisdiction," the man said, white-lipped.

"Oh come on, what is your jurisdiction? Your pocket is your only jurisdiction." He went on until they got up and left the car, as angry at him as he was at them, but too disciplined or scared to talk back.

In the Sheffield offices he strode from room to room, shouting at the staff and making calls. Sax, Vlad, Janet. He told them what was happening, and they all eventually offered the same suggestion, which he had to admit was a good one. He would have to go up the elevator, and talk to Phyllis. "See if you can manage the reservations," he said to his staff.

The elevator car was like an old Amsterdam house, narrow and tall, with a light-filled room at the top, in this case a clear-walled and domed chamber that reminded Frank of the bubble dome of the Ares. On the second day of the trip he joined the car's other passengers (only twenty on this one, there weren't too many people going this way) and they took the car's own little interior elevator up the thirty stories to this clear penthouse, to see Phobos pass. The outer perimeter of the room was set out over the

enough away.

Then one of the elevator pilots pointed out Phobos, a dim white object to the west. In ten minutes it was upon them, flashing past with astonishing speed, a large gray potato hurtling faster than the head could turn. Zip! Gone. The observers in the penthouse hooted, exclaimed, chattered. Frank had caught only the merest glimpse of the dome on Stickney, winking like a gem in the rock. And there had been a piste banding the middle like a wedding ring, and some bright silver lumps; that was all he could recall of the blurred image. Fifty kilometers away when it passed, the pilot said. At seven thousand kilometers an hour. Not all that fast, actually; there were meteors that hit the planet at fifty thousand kilometers an hour. But fast enough.

Frank went back down to the dining floor, trying to fix the hurtling image in his mind. Phobos: people at the dining table next to him talked of shoving it up into a braided orbit with Deimos. It was out of the loop now, a new Azores, nothing but an inconvenience to the cable. And Phyllis had argued all along that Mars itself would have suffered the same fate in the solar system at large, unless the elevator were built to climb its gravity well; they would have been bypassed by miners going to the metal-rich asteroids, which had no gravity wells to contend with. And then there were the moons of Jupiter, Saturn, the outer planets. . . .

But there was no danger of that now.

###

On the fifth day they approached Clarke, and slowed down. It had been an asteroid about two kilometers across, a carbonaceous hunk now shaped to a cube, with every centimeter of its Mars-facing surface graded and covered with concrete, steel, or glass. The cable plunged right into the center of this assemblage; there were holes on both sides of the joint where cable met moon, just big enough to allow passage to the elevator cars.

They slid up into one of these holes, and came to a smooth stop. The interior space they slid into was like a vertical subway station. The passengers got out and went their ways into the tunnels of Clarke. One of

engineering, don't you think?

"Yes!" the men replied replied.

She looked about fifty years old. After fulsome introductions-the men were from Amex-the others left. When Phyllis and Frank were the only ones left in the room, Frank said to her, "You'd better stop using this extraordinarily elegant piece of engineering to flood Mars with emigrants, or it'll blow up in your face and you'll lose your anchoring point."

"Oh Frank." She laughed. She really had aged well: hair silver, face handsomely lined and taut, figure trim. Neat as a pin in a rust jumpsuit and lots of gold jewelry, which together with her silver hair gave her an overall metallic sheen. She even looked at Frank through gold wire-rimmed glasses, an affectation that distanced her from the room, as if she were focusing on flat video images on the insides of her spectacles.

"You can't send down so many so fast," he insisted. "There's no infrastructure for them, physically or culturally. What's developing are the worst kind of wildcat settlements, they're like refugee camps or forced labor camps, and it'll get reported like that back home, you know how they always use analogies to Terran situations. And that's bound to hurt you."

She stared at a spot about three feet in front of him. "Most people don't see it that way," she proclaimed, as if the room were full of listeners. "This is just a step on the path to full human use of Mars. It's here for us and we're going to use it. Earth is desperately crowded, and the mortality rate is still dropping. Science and faith will continue to create new opportunities as they always have. These first pioneers may suffer some hardships, but those won't last long. We lived worse than they do now, when we first arrived."

Startled at this lie, Frank glared at her. But she did not back down. Scornfully he said, "You're not paying attention!" But the thought frightened him, and he paused.

He brought himself back under control, stared through the clear floor at the planet. As they were rotating with it they always looked down on Tharsis, of course, and from this high it looked like one of the old photographs, the orange ball with all the familiar markings of its most

And all this showed, of course, in the way she rip-ripped around the brilliant glassine room, in the way she smiled at all his withering remarks. Well, she always had been a little stupid. Frank gritted his teeth. Apparently it was time to start using the good old USA like a sledgehammer, see if it had any heft remaining in it.

"Most of the transnationals have giant holdings in the States," he said. "If the American government decided to freeze their assets, because they were breaking the treaty, it would slow down all of them, and break some."

"You could never do that," Phyllis said. "It would bankrupt the government."

"That's like threatening a dead man with hanging. A couple more zeroes on the figure are just one more level of unreality, no one can really imagine it anymore. The only ones who even think they can are exactly your transnational executives. They hold the debt, but no one else cares about their money. I could convince Washington of this in a minute, and then you just see how it blows up in your face. Whichever way it does, it wrecks your game." He waved a hand angrily. "At which point someone else will occupy these rooms, and-" a sudden intuition-"you'll be back in Underhill."

That got her attention, no doubt about it. Her easy contempt took on a sudden edge. "No single person can convince Washington of anything. It's quicksand down there. You'll have your say and I'll have mine, and we'll see who has more influence." And she rip-ripped across the room and opened the door, and loudly welcomed a gang of UN officials.

###

So. A waste of time. He wasn't surprised; unlike those who had advised him to come, he had had no faith in the idea of Phyllis being rational. As with many religious fundamentalists, business for her was part of the religion; the two dogmas were mutually reinforcing, part of the same system. Reason had nothing to do with it. And while she might still believe in America's power, she certainly didn't believe in Frank's ability to wield it. Fair enough; he would prove her wrong.

through him. The sensation passed, and after a bit of thought he decided it must have been that the decelerating car had passed momentarily through one gee. An image came to him: running out a long pier, wet uneven boards splashed with silver fish scales; he could even smell the salt fish stink. One gee. Funny how the body remembered it.

Once resettled in Sheffield, he went back to the continuous round of recording messages and analyzing the incoming replies, dealing with old cronies and with upcoming powers, all the talk patched together into a crazy quilt of arguments proceeding at different rates. At one point, late in the northern autumn, he was engaged in about fifty conferences simultaneously; it was like those people who play chess blind with a room full of opponents. Three weeks of this, however, and it began to come around, basically because President Incaviglia himself was extremely interested in getting any leverage he could over Amex and Mitsubishi and Praxis; and so he was more than willing to leak to the media his intent to look into allegations of treaty violations.

He did that, and stocks fell sharply in the relevant quarters. And two days later, the elevator consortium announced that enthusiasm for Martian opportunities had been so great that demand had exceeded supply for the time being. They would raise prices, of course, as their creed required; but also they would have to slow down emigration temporarily, until more towns and robotic townbuilders had been constructed.

Frank first heard this on a bar TV news report, one evening in a café over his solitary dinner. He grinned wolfishly as he chewed. "So we see who's better at wrestling in quicksand, you bitch." He finished eating and went for a walk along the rim concourse. It was only one battle, he knew. And it was going to be a bitter long war. But still, it was nice.

##

Then in the northern middle winter the occupants of the oldest American tent on the east slope rioted, and threw out all the UNOMA police inside, and locked themselves in; and the Russians next door did the same.

A quick conference with Slusinski gave Frank the background. Apparently both groups were employed by the roadbuilding subdivision of

been killed. The UNOMA police had sent in massive reinforcements, and the workers inside the two tents were more trapped than ever.

Enraged and disgusted, Frank went down again to deal with it in person. He had to ignore not only the standard objections of his staff, but also the new factor's prohibition (Helmut had been called back to Earth); and once at the station he also had to face down the UNOMA police head, no easy task. Never before had he tried to rely so heavily on the charisma of the first hundred, and it made him furious. In the end he had to simply walk through the policemen, a crazy old man striding through all civilized restraint. And no one there cared to stop him, not this time.

The crowd inside the tent looked ugly indeed on the monitors, but he banged on their passage lock door and finally was let in, into a crush of angry young men and women. He walked through the inner lock door and breathed hot stale air. So many people were shouting he could make nothing out, but the ones in front recognized him and were clearly surprised to see him there. A couple of them cheered.

"All right! I'm here!" he shouted. Then: "Who speaks for you?"

They had no spokesman. He swore viciously. "What kind of fools are you? You'd better learn to operate the system, or you'll be in bags like this one forever. Bags like this or else bodybags."

Several people shouted things at him, but most wanted to hear what he would say. And still no sign of a spokesman, so Chalmers shouted, "All right, I'll talk to all of you! Sit down so I can see who's speaking!"

They would not sit; but they did stand without moving, in a group around him, there on the tattered astroturf of the tent's main square. Chalmers balanced himself on an upturned box in the middle of them. It was late afternoon and they cast shadows far down the slope to the east, into the tents below. He asked what had happened, and various voices described the midnight attack, the skirmish in the station.

"You were provoked," he said when they were done. "They wanted you to make some fool move and you did, it's one of the oldest tricks in the book. They've gotten you to kill some third parties that had nothing to do

accordingly: "I don't know why there are so few people on this planet capable of doing that. It's like the passage from Earth scrambles the brain or something."

Some laughed a startled laugh. Frank asked them about conditions in the tents. They had the same complaints as the others had, and again he could anticipate, and say it for them. Then he described the result of his trip to Clarke. "I got a moratorium on emigration, and that means more than just time to build more towns. It means the start of a new phase between the US and the UN. They finally figured it out in Washington that the UN is working for the transnationals, and so they need to enforce the treaty themselves. It's in Washington's best interest, and they're the only ones that'll do it. The treaty is part of the battle now, the battle between people and the transnationals. You're in that battle and you've been attacked, and you have to figure out who to attack back, and how to connect up with your allies!"

They were looking grim at this, which showed sense, and Frank said, "Eventually we're going to win, you know. There's more of us than them."

So much for the carrot, such as it was. As for the stick, that was always easy with people as powerless as these. "Look, if the national governments can't calm things down quick, if there's more unrest here and things start coming apart, they'll say the hell with it-let the transnats solve their labor problems themselves, they'll be more efficient at it. And you know what that means for you."

"We're sick of this!" one man shouted.

"Of course you are," he said. He pointed a finger. "So do you have a plan to bring it to an end, or not?"

It took a while to ratchet them into agreement. Disarm, co-operate, organize, petition the American government for help, for justice. Put themselves in his hands, in effect. Of course it took a while. And along the way he had to promise to address every complaint, to solve every injustice, to right every wrong. It was ridiculous, obscene; but he pursed his lips and did it. He gave them advice in media relations and arbitration technique, he told them how to organize cells and committees, to elect leaders. They

pacifying exploited laborers with lies and sophistry were the highest heroism. Which to her it no doubt was. In fact she was off to employ the same techniques in the Russian tent, because there had been no progress there, and they had asked for her. The MarsFirst president! So the Russians were even more foolish than the Americans, apparently.

She asked him to accompany her, and he was too exhausted to run a cost/benefit analysis of the act. With a twist of the mouth he agreed. It was easier just to tag along.

They took the train down to the next station, made their way through the police and inside. The Russian tent was packed like a circuit board. "You're going to have a harder job of it than I did," Frank said as he looked around.

"Russians are used to it," she said. "These tents aren't that different from Moscow apartments."

"Yes, yes." Russia had become a kind of immense Korea, sporting the same brutal streamlined capitalism, perfectly Taylorized and with a veneer of democracy and consumer goods covering the junta. "It's amazing how little you need to keep starving people strung along."

"Frank, please."

"Just remember that and it will go okay."

"Are you going to help or not?" she demanded.

"Yes, yes."

###

The central square smelt of bean curd and borscht and electrical fires, and the crowd was much more unruly and loud than in the American tent, everyone there a defiant leader, ready to unleash a declamation. A lot more of them were women than in the American tent. They had unpisted a train and this had galvanized them, they were anxious for more action. Maya had to use a hand megaphone, and all the time that she stood on a chair and talked, the crowd swirled around them and participants in several loud arguments ignored her, as if she were a cocktail lounge pianist.

Frank's Russian was rusty, and he couldn't understand most of what the crowd shouted at Maya, but he followed her replies pretty well. She was

what? she snapped.

"The stick. Threaten them. Carrot and stick."

She nodded. Into the megaphone again: the never-to-be-taken-for-granted fact of the poisonous air, the deadly cold. They were alive only because of the tents, and the input of electricity and water. Vulnerable in ways they hadn't fully thought out, in ways that didn't exist back home.

She was quick, she always had been. Back to promises. Back and forth, stick and carrot, a jerk on the leash, some niblets. Eventually the Russians too were pacified.

Afterward on the train up to Sheffield Maya gabbled with nervous relief, face flushed, eyes brilliant, hand clutching his arm as she threw her head back abruptly and laughed. That nervous intelligence, that arresting physical presence. . . he must have been exhausted himself, or more shaken than he had realized by the the time in the tents, or maybe it was the encounter with Phyllis; because he felt himself warming to her, it was like stepping into a sauna after a freezing day outside, with that same sense of relief from vigilance, of penetrating ease. "I don't know what I would have done without you," she was saying rapidly, "really you are so good in those situations, so clear and firm and sharp. They believe you because you don't try to flatter them or soften the truth."

"That's what works best," he said, looking out the window at the tents running by. "Especially when you're flattering them and lying to them."

"Oh Frank."

"It's true. You're good at it yourself."

This was an example of the trope under discussion, but Maya didn't see it. There was a name for that in rhetoric, but he couldn't recall it. Metonymy? Synecdoche? But she only laughed and squeezed his shoulder, leaning against him. As if the fight in Burroughs had never happened, not to mention everything before that. And in Sheffield she ignored her stop, and got off the train with him at his stop, walking at his shoulder through the spaciousness of the rim station, and then to his rooms, where she stripped and showered and put on one of his jumpers, chattering all the while about the day and the situation at large, as if they

calm. The touch of a whole body, all at once. . . . And if he ever started things, she was so quick to respond; he only had to touch her arm. Like stepping into a sauna. She was so easy these days, so calm. Like a different person, it was amazing. Not Maya at all; but there she was, whispering Frank, Frank.

But they never talked about any of that. It was always the situation, the day's news; and in truth that gave them a lot to talk about. The unrest on Pavonis had gone into abeyance temporarily, but the troubles were planetwide, and getting worse: sabotages, strikes, riots, fights, skirmishes, murder. And the news from Earth had plummeted through even the blackest of gallows humor, into just plain awfulness; Mars was the picture of order in comparison, a little local eddy spun away from the vortex of a giant maelstrom, which looked to Frank like a death spiral for everything that fell into it. Little wars like matchheads were flaring everywhere. India and Pakistan had used nuclear weapons in Kashmir. Africa was dying, and the north bickered over who should help first.

One day they got word that the mohole town Hephaestus, west of Elysium, manned by Americans and Russians, had been entirely deserted. Radio contact had stopped, and when people went down from Elysium to look, they had found the town empty. All Elysium was in an uproar, and Frank and Maya decided to see if they could do something in person. They took the train down Tharsis together, back down into the thickening air and across the rocky plains now piebald with snowdrifts that never melted, with snow that was a dirty granular pink, conforming tightly to the north slope of every dune and rock, like colored shadows. And then onto the glistening crazed black plains of Isidis, where the permafrost melted on the warmest summer days, and then refroze in a bright black cracklelure. A tundra in the making, maybe even a marsh. Flying by the train windows were tufts of black grass, perhaps even arctic flowers. Or maybe it was just litter.

Burroughs was quiet and uneasy, the broad grassy boulevards empty, their green as shocking as a hallucination or an afterimage of looking into the sun. While waiting for the train to Elysium, Frank went to the station's storage room and reclaimed the contents of his Burroughs room, which he

were subdued by his presence, and irritably he ignored them and glanced through his old lectern. A standard selection for the most part, a great book series only slightly augmented by some political philosophy packages. A hundred thousand volumes; lecterns today beat that a hundredfold, although it was a pointless improvement, as there was no longer time to read even a single book. He had been fond of Nietzsche in those days, apparently. About half the marked passages were from him, and glancing through them Frank couldn't see why, it was all windy drivel. And then he read one that made him shudder: "The individual is, in his future and his past, a piece of fate, one law more, one necessity more for everything that is and everything that will be. To say to him 'change yourself' means to demand that everything should change, even in the past. . . ."

In Hephaestus a new mohole crew was settling in, old timers for the most part, tech and engineering types, but much more sophisticated than the newcomers on Pavonis. Frank talked with quite a few of them, asking about those who had disappeared, and one morning at breakfast, next to a window that looked out on the mohole's solid white thermal plume, an American woman who reminded him of Ursula said, "These people have seen the videos all their life, they're students of Mars, they believe in it like a grail, and organize their lives around getting here. They work for years, and save, and then sell everything they have to get passage, because they have an idea of what it will be like. And then they get here and they're incarcerated, or at best back in the old rut, in indoor jobs so it's all just like it's still on TV. And so they disappear. Because they're looking for more the kind of thing they came here for."

"But they don't know how the disappeared live!" Chalmers objected. "Or even if they survive at all!"

The woman shook her head. "Word gets around. People come back. There are one-play videos that show up occasionally." The people around her nodded. "And we can see what's coming up from Earth after us. Best to get into the country while the chance is still there."

It's impossible," Frank exclaimed. "We're part of the world, we can't escape it."

"Can't we? It's only the blue evening star, the world you speak of. This red world is the only real one for us, now."

Frank gave up, exasperated. He had never been able to talk to Arkady, never. With John it had been different; but then he and John had been friends.

He trained back to Elysium. The Elysium Massif rose over the horizon like an enormous saddle dropped on the desert; the steep slopes of the two volcanoes were pinkish white now, deep in snows that had packed down to firm, and would become glaciers before too long. He had always thought of the Elysium cities as a counterweight to Tharsis; older, smaller, more manageable and sane. But now people there were disappearing by the hundreds; it was a jump-off point into the unknown nation, hidden out there in the cratered wilderness.

In Elysium they asked him to give a speech to a group of American newcomers, on the first evening of their orientation. A formal speech, but there was an informal gathering before, and Frank wandered around asking questions as usual. "Of course we'll get out if we can," one man said to him boldly.

Others chipped in immediately. "They told us not to come here if we wanted to get outdoors much. It's not like that on Mars, they said."

"Who do they think they're fooling?"

"We can see the video you sent back as well as they can."

"Hell, every other article you read is about the Mars underground, and how they're communists or nudists or Rosicrucians-"

"Utopias or caravans or cave-dwelling primitives-"

"Amazons or lamas or cowboys-"

"What it is, is everyone's projecting their fantasies out here because it's so bad back there, do you understand?"

"Maybe there's a single co-ordinated counterworld-"

"That's another big fantasy, the totalizing fantasy-"

I don't know. He shook his head unhappily. "But it's all fantasy, do you understand? The need to stay hidden would hamper any community in a crippling way. It's all stories, when you get right down to it."

"Then where are all the disappeared going?"

Frank shrugged uneasily, and they grinned.

An hour later he was still thinking about it. Everyone had moved out into an open-air amphitheater, built from fixed salt blocks in classical Greek style. The semi-circle of rising white benches was filled with bodies topped by attentive faces, waiting for his speech, curious to see what one of the first hundred would say to them; he was a relic of the past, a character out of history, he had been on Mars ten years before some of the people in the audience were born, and his memories of Earth were of their grandparents' time, on the other side of a vast and shadowy chasm of years.

The classical Greeks had certainly gotten the size and proportions right for a single orator; he hardly had to raise his voice, and they all heard him. He told them some of the usual things, his standard address, all chopped and censored, as it was sadly tattered by current events. It didn't sound very coherent, even to him. "Look," he said, desperately revising as he spoke, ad libbing, searching through the faces in the crowd, "when we came up here we came to a different place, to a new world, and that necessarily makes us different beings than we were before. None of the old directives from Earth matter. Inevitably we will make a new Martian society, just in the nature of things. It comes out of the decisions we make together, by our collective action. And they are decisions that we're making in our time, in these years, right now at this very instant. But if you dodge off into the outback and join one of the hidden colonies, you isolate yourself! You remain whatever you were when you came, never metamorphosing into a Martian human. And you also deprive the rest of us of your expertise and your input. I know this personally, believe me." Pain lanced through him, he was astonished to feel it: "As you know, some of the first hundred were the first to disappear, presumably under the leadership of Hiroko Ai. I still don't understand why they did it, I really don't. But how we have missed her genius for systems design in the years since,

NO! Someone belowed.

A flicker of his old anger boiled through his confusion. "I'm saying we have to make a new Mars here! I'm saying we're completely new beings, God dammit, that nothing is the same here! Nothing is the same!"

He had to give up, go sit down. Other speakers took over, and their droning voices floated over him as he sat, stunned, looking out the open end of the amphitheater into a park of wide-set sycamore trees. Slender white buildings beyond, trees growing on their roofs and balconies. A green and white vision.

He couldn't tell them. No one could tell them. Only time, and Mars itself. And in the meantime they would act in obvious contradiction to their own best interests. It happened all the time, but how could it, how? Why were people so stupid?

He left the amphitheater, stalked through the park and the town. "How can people act against their own obvious material interests?" he demanded of Slusinski over his wristpad. "It's crazy! Marxists were materialists, how did they explain it?"

"Ideology, sir."

"But if the material world and our method of manipulating it determine everything else, how can ideology happen? Where did they say it comes from?"

"Some of them defined ideology as an imaginary relationship to a real situation. They acknowledged that imagination was a powerful force in human life."

"But then they weren't materialists at all!" He swore with disgust. "No wonder Marxism is dead."

"Well, sir, actually a lot of people on Mars call themselves Marxists."

"Shit! They might as well call themselves Zoroastrians, or Jansenists, or Hegelians."

"Marxists are Hegelian, sir."

"Shut up," Frank snarled, and broke the connection.

Imaginary beings, in a real landscape. No wonder he had forgotten the carrot and the stick, and wandered off into the realm of new being and

For an hour. After which the emigrants would disappear as before. It was a world of acts, and words had no more influence on acts than the sound of a waterfall has on the flow of the stream.

He hurried off to the mesa offices. Maya came along and chattered at him as he checked into one of the yellow-walled rooms on the fourth floor. Bamboo furniture, flowery sheets and couch cushions. Maya was full of plans, cheery, pleased with him. She was pleased with him! He crushed his teeth together until they hurt. Bruxism was giving him headaches and all kinds of facial pain, wearing through his crowns and the cartilage in his jaw joints.

Finally he stood and walked to the door. "I have to go for a walk," he said. As he left he saw her face in his peripheral vision: hurt surprise. As usual.

He walked quickly down to the sward, and paced off the long row of Bareiss columns, their disarray like bowling pins caught flying. On the other side of the canal he sat at a round white table at the edge of a sidewalk café, and nursed a Greek coffee for an hour.

Suddenly Maya was standing before him.

"What do you mean by this?" she said. She gestured at the table, at his own annoyed scowl. "What is wrong now?"

He stared at his coffee cup, looked up at her; back down at the cup. It was impossible. A sentence was pronouncing itself in his mind, each word equally weighted: I killed John.

"Nothing's wrong," he said. "What do you mean."

The corners of her mouth tightened, making her glare look contemptuous, and her face old. Nearly eighty now. They were too old for this. After a long silence she sat down across from him.

"Look," she said slowly. "I don't care what happened in the past." She stopped speaking, and he risked a glance at her; she was staring down, looking inward. "What happened in the Ares, I mean, or in Underhill. Or any of it."

His heart beat inside him like a child trying to escape. His lungs were cold. She was still talking, but he hadn't caught it. Did she know? Did she

Finally she breathed, pulled her head up. "No," she said, so quietly that at first he assumed she was addressing herself. "Don't speak of it. You think I care, and so you do all this. As if I would care more about then than now." She looked up at him and caught his gaze. "It was thirty years ago," she said. "Thirty-five since we met, and thirty since all that happened. I am not that Maya Katarina Toitovna. I don't know her, I don't know what she thought or felt, or why. That was a different world, another life. It doesn't matter to me now. I have no feeling for it. Now I am here, and this is me." She poked herself between the breasts with a thumb. "And look; I love you."

She let the silence stretch, her last words drifting out like ripples on a pond. He couldn't stop looking at her; then he pulled his gaze away, he glared up at the faint twilight stars overhead, let their position seep into his memory. When she said I love you, Orion stood tall in the southern sky. The metal chair under you was hard. Your feet were cold.

"I don't want to think about anything but that," she said.

She didn't know; and he did. But everyone has to assume their past somehow. They were eighty-odd years old, and healthy. There were people who were now a hundred and ten years old, healthy, vigorous, strong. Who knew how long it would last? They were going to have a lot of past to assume. And as it went on, and those years of their youth receded into the distant past, all those searing passions that had cut so deep. . . could they really be only scars? Weren't they crippling wounds, a thousand amputations?

But it wasn't a physical thing. Amputations, castrations, hollowing out; they were all in the imagination. An imaginary relationship to a real situation. . . .

"The brain is a funny animal," he muttered.

She cocked her head, looked curiously at him. Suddenly he was afraid; they were their pasts, they had to be or they were nothing at all, and whatever they felt or thought or said in the present was nothing more than an echo of the past; and so when they said what they said, how could they know what their deeper minds were really feeling, thinking, saying? They

He lifted his hand, so frightened that the movement felt like teleoperation. He was a dwarf in a waldo, a waldo that was stiff, touchy, unfamiliar: lift, quick modulate! To the left, hold; return, hold; steady. Down gently. Gently gently onto the back of her hand. Clasp, very gently. Her hand was really very cold; and so was his.

She looked wanly at him.

"Let's-" He had to clear his throat. "Let's go back to our rooms."

###

For weeks after that he remained physically clumsy, as if he had withdrawn into some other space, and had to operate his body from a distance. Teleoperation. It made him aware of how many muscles he had. Sometimes he knew them so well he could snake through the air; but most of the time he jerked across the landscape like Frankenstein's monster.

Burroughs was flooded with bad news; life in the city seemed fairly normal, but the video screens piped in scenes of a world Frank could scarcely believe. Riots in Hellas; the domed crater New Houston declaring itself an independent republic; and that same week, Slusinski sent tape of an American orientation in which all five dorms had voted to leave for Hellas without the proper travel permits. Chalmers contacted the new UNOMA factor, and got a detachment of UN security police to go there; and ten men arrested five hundred, by the simple expedient of overriding the tent's physical plant computer and ordering the helpless occupants to board a series of train cars, before the tent's air was released. They had then been trained off to Korolyov, which was now in effect a prison city. Its transformation into a prison had become general knowledge sometime recently; it was hard to recall exactly when, as it had an air of already-always about it, perhaps because the parts of a prison system had already existed for several years, scattered planetwide.

Chalmers interviewed some the prisoners over their room videos, two or three at a time. "You see how easy it was to detain you," he told them. "That's the way it will be all over. The life support systems are so fragile that they're impossible to defend. Even on Earth advanced military

deceptively wrong because they mask the reality, the true nature of our dependence and their might. They keep you from seeing that it's a fantasy!"

"I'm sure there was many a good Tory neighbor arguing the same case in the colonies," the man said with a grin. "Actually the analogy is in many ways a good one. We're not just cogs in the machine here, we're individual people, most of us ordinary, but there's some real characters too, we're going to see our Washingtons and Jeffersons and Paines, I guarantee you. Also the Andrew Jacksons and Forrest Mosebys, the brutal men who are good at getting what they want."

"This is ridiculous!" Frank cried. "It's a false analogy!"

"Well, it's more metaphor than analogy anyway. There are differences, but we intend to respond to those creatively. We won't be hefting muskets over rock walls to take potshots at you."

"Hefting mining lasers over craters walls? You think that's different?"

The man flicked at him, as if the camera in his room were a mosquito. "I suppose the real question is, will we have a Lincoln?"

"Lincoln is dead," Frank snapped. "And historical analogy is the last refuge of people who can't grasp the current situation." He cut the connection.

Reason was useless. Also anger, also sarcasm, not to mention irony. He could only try to match them in fantasyland. So he stood up in meetings and did his very best, haranguing them about what Mars was, how it had come to be, what a fine future it could have as a collective society, specifically and organically Martian in its nature, "with the dross of all those Terran hatreds burnt away, all those dead habits that keep us from really living, from the creation that is the world's only real beauty, damn it!"

Useless. He tried to arrange meetings with some of the disappeared, and once he talked with a group by phone, and asked them to pass the word along to Hiroko if possible, that he urgently needed to talk to her. But no one seemed to know where she was.

He shook his head.

Then there was a new wave of emigration. He shouted for Slusinski and ordered him to get an explanation from Washington.

"Apparently, sir, the elevator consortium has been bought in a hostile takeover by Subarashii, so its assets are in Trinidad Tobago and it is no longer interested in responding to American concerns about the matter. Infrastructure construction capability is now in line with a moderate emigration rate, they say."

"Damn them!" Frank said. "They don't know what they're doing with this!"

He walked in a circle, grinding his teeth. The words spilled quietly out of him, in a monologue of their own making; "You see but you don't understand. It's like John used to say, there's parts of Martian reality that don't make it across the vacuum, not just the feel of the gravity, but the feel of getting up in a dorm and going down to the baths, and then across the alley to a dining hall. And so you're getting it all wrong, you arrogant, ignorant, stupid sons of bitches. . . ."

He and Maya took the train from Burroughs back up to Pavonis Mons. All during the trip he sat by the window and watched the red landscape rise and fall, contract in to the flatland five kilometers and then, as they rose, extend out to forty kilometers, or a hundred. Such a big bulge in the planet, Tharsis. Something inside, breaking out. As in the current situation. Yes, they were stuck on the side of the Tharsis bulge of Martian history, with the big volcanoes about to pop.

And then there one was, Pavonis Mons, an enormous dream mountain, as if the world were a print by Hokusai. Frank found it difficult to talk. He avoided looking at the TV at the front of the car; news flashed up and down the train almost instantly anyway, in snatches of overheard conversation or the looks on people's faces. It was never necessary to watch the video to find out the really important news. The train ran through a forest of Acheron pines, tiny things with bark like black iron, and cylindrical bushes of needles; but the needles were all yellow and drooping. He had heard about this, there was some kind of problem with the soil, too much salt or

disappeared, you could slip into Nicosia and never be heard of again; it had happened hundreds of times, so many that it was clear there was some system there, of contact and transmission, an underground railroad kind of thing that no undercover agent had yet been able to penetrate, or at least to return from. "Let's go down there and talk to him," Frank said to Maya when he heard. "I really want to confront him in person."

"It won't do any good," Maya said darkly. But Nadia was supposed to be there as well, as so she came along.

All down the slope of Tharsis they rode in silence, watching the frosted rock fly by. At Nicosia the station opened for their train as if there was not even a question of refusing them. But Arkady and Nadia were not in the small crowd that greeted them; instead it was Alexander Zhalin, and Raul. Back at the city manager's offices, they called up Arkady on a vidlink; judging by the sunlight behind him, he was already many kilometers to the east. And Nadia, they said, had never been in Nicosia at all.

Arkady looked the same as ever, expansive and relaxed. "This is madness," Frank said to him, furious that he had not gotten him in person. "You can't hope to succeed."

"But we can," Arkady said. "We do." His luxuriant red-and-white beard was an obvious revolutionary badge, as if he were the young Fidel about to enter Havana. "Of course it would be easier with your help, Frank. Think about it!"

Then before Frank could say more, someone offscreen got Arkady's attention. A muttered conversation in Russian, and then Arkady faced him again. "Sorry, Frank," he said. "I must attend to something. I'll get back to you as soon as possible."

"Don't you go!" Frank shouted, but the connection was gone. "God damn it!"

Nadia came on the line. She was in Burroughs, but had been linked into the exchange, such as it was. In contrast to Arkady she was taut, brusque, unhappy. "You can't support what he's doing!" Frank cried.

Elena and Raul, Frank wasn't interested, it was a waste of time. Restlessly he walked the circumference of the old town, through alleys running against the tent wall, remembering that night so long ago. Only nine years, in fact, though it felt like a hundred. Nicosia looked little these days. The park at the western apex still had a good view of the whole, but a blackness filled things so that he could scarcely see.

In the sycamore grove, now mature, he passed a short man hurrying the other way. The man stopped and stared at Frank, who was under a streetlamp. "Chalmers!" the man exclaimed.

Frank turned. The man had a thin face, long tangled dreadlocks, dark skin. No one he knew. But seeing him, he felt a chill. "Yes?" he snapped.

The man regarded him. He said, "You don't know me, do you."

"No I don't. Who are you?"

The man's grin was assymetrical, as if his face had been cracked at the point of the jaw. Underneath the streetlight it looked warped, half-crazed.

"Who are you?" Frank said again.

The man raised a finger. "The last time we met, you were bringing down the town. Tonight it's my turn. Ha!" He strode off laughing, each sharp "ha!" higher than the last.

Back at the city manager's, Maya clutched his arm. "I was worried, you shouldn't be walking around alone in this town!"

"Shut up." He went to a phone and called the physical plant. Everything was normal. He called the UNOMA police, and told them to mount an armed guard at the plant and the train station. He was still repeating the order to someone higher up the chain of command, and it seemed likely it would go all the way up to new factor for final confirmation, when the screen went blank. There was a tremor underfoot, and every alarm bell in town went off at once. A concerted, adrenal brinnnnng!

Then there was a sharp jolt. The doors all hissed shut; the building was sealing, meaning pressures outside had made a rapid drop. He and Maya ran to the window and looked out. The tent over Nicosia was down, in some places stretched over the tallest rooftops like saran wrap, in others blowing away on the wind. People down on the street were pounding on

NO.
"Well?" she cried, exasperated by his silence. "Do you know what's going on?"

"Revolution," he said.

Part Seven
Senzeni Na

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On the fourteenth day of the revolution Arkady Bogdanov dreamed he and his father sat on a wooden box, before a small fire at the edge of the clearing; a kind of campfire, except that the long low tin-roofed buildings of Ugoly were just a hundred meters behind their backs. They had their bare hands extended to the radiant heat, and his father was once again telling the story of his encounter with the snow leopard. It was windy and the flames gusted. Then a fire alarm rang out behind them.

It was Arkady's alarm, set for 4 AM. He got up and took a hot sponge bath. An image from the dream re-occurred to him. He had not slept much since the revolt's beginning, just a few hours snatched here or there, and his alarm had awakened him from several deep sleep dreams, the kind one normally did not remember. Almost all had been undistorted memories of his childhood, memories never once recalled before. It made him wonder just how much the memory held, and if its storage might not be immensely more powerful than its retrieval mechanism. Might one be able to remembre every second of one's life, but only in dreams that were always lost on waking? Might this be necessary, somehow? And if so, what would happen if people started living for two or three hundred years?

Janet Blyleven came by, looking worried. "They've blown up Nemesis. Roald has analyzed the video, and guesses they hit it with a bunch of hydrogen bombs."

when the black sky returned the asteroid was gone, a shimmering of stars to the right of the screen indicated the passage of fragments, then they steadied and it was over. No fiery white cloud, no roar on the soundtrack; just a reporter's tinny voice, chattering about the end of the Martian rioters' doomsday threat, and the vindication of the concept of strategic defense. Although apparently the missiles had come from the Amex lunar base, launched by rail gun.

"I never did like the idea," Arkady said. "It was mutual assured destruction all over again."

Roald said, "But if there's mutual assured destruction, and one side loses the capability. . . ."

"We haven't lost the capability here, though. And they value what's here as much as we do. So now we're back to the Swiss defense." Destroy what they wanted and take to the hills, for resistance forever. It was more to his liking.

"It's weaker," Roald said bluntly. He had voted with the majority, in favor of sending Nemesis on its course toward the Earth.

Arkady nodded. It couldn't be denied that one term had been erased from the equation. But it wasn't clear if the balance of power had changed or not. Nemesis had not been his idea; Mikhail Yangel had proposed it, and the group in the asteroids had carried it out on their own. Now a lot of them were dead, killed by the big explosion or by smaller ones out in the belt; while Nemesis itself had created the impression that the rebels would countenance mass destruction on Earth. A bad idea, as Arkady had pointed out.

But that was life in a revolution. No one was in control, no matter what people said. And for the most part it was better that way, especially here on Mars. Fighting had been severe in the first week, UNOMA and the transnationals had beefed up their security forces in the previous year. A lot of the big cities had been instantly seized by them, and it might have happened everywhere except that there turned out to be so many more rebel groups than they or anyone else had known about. Over sixty towns and stations had gotten on the net and declared independence, they had

the city was just waking. A lot of rebels had come in from other towns of the cratered highlands, and they slept on the park grass. People sat up, sleeping bags still draped over their legs, eyes puffy, hair wild. Night temperatures were being kept up, but it was still cool at dawn, and those out of their bags crouched around stoves, blowing into their hands and puttering with coffee pots and samovars, and checking to the west to see how close the line of sunlight had crept. When they saw Arkady they waved, and more than once he was stopped by people who wanted to get his opinion of the news, or give him advice. Arkady answered them all cheerfully. Again he felt that difference in the air, the sense that they were all in a new space together, everyone facing the same problems, everyone equal, everyone (seeing a heating coil, glowing under a coffee pot) incandescent with the electricity of freedom.

He walked feeling lighter, chattering into his wristpad's diary file as he went. "The park reminds me of what Orwell said about Barcelona in the hands of the anarchists; it is the euphoria of a new social contract, of a return to that child's dream of fairness we all began with."

His wristpad beeped and Phyllis's face appeared on the tiny screen, which was annoying. "What do you want?" he asked.

"Nemesis is gone. We want you to surrender before any more damage is done. It's simple now, Arkady. Surrender or die."

He almost laughed. She was like the wicked witch in the Oz movie, appearing unexpectedly in his crystal ball.

"It's no laughing matter!" she exclaimed. Suddenly he saw that she was scared.

"You know we had nothing to do with Nemesis," he said. "It is irrelevant."

"How can you be such a fool!" she cried.

"It is not foolishness. Listen, you tell your masters this; if they try to subdue the free cities here, we will destroy everything on Mars." That was the Swiss defense.

"Do you think that matters?" She was white-lipped, her tiny image like a primitive fury mask.

warning lights had gone on, a tech had discovered it accidentally.

Half an hour's work and they found it. A program had been substituted. They replaced it, but Tati Anokhin was not happy. "Look, that had to be sabotage, and there's still more oxygen than even this accounts for. Look, it's nearly forty percent out there right now."

"No wonder everyone is in such a good mood this morning."

"I'm not. Besides that mood thing is a myth."

"Are you sure? Go through the programming again, and look at the encryption IDs, and see if there are any other substitutions hidden under this one."

He headed back to the city offices. He was halfway there when there was a loud pop overhead. He looked up and saw a small hole in the dome. The air suddenly took on an iridescent shimmer, as if they were inside a great soap bubble. A bright flash and a loud boom knocked him to his feet. Struggling back up, he saw everything ignite simultaneously; people were burning like torches; and right before his eyes his arm caught fire.

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It was not hard to destroy Martian towns. No harder than breaking a window, or popping a balloon.

Nadia Chernevsky discovered this while holed up in the city offices of Lasswitz, a tent town which had been punctured one night just after sunset. All the surviving occupants were now huddled in the city offices or the physical plant. For three days they had spent their time going out to try to repair the tent, and watching TV to try and figure out what was going on. But the Terran news packages were concerned with its own wars, which seemed to be coalescing into one. Only infrequently were there a brief report on the wrecked Martian towns. One said that many domed craters had been hit by missiles from over the horizon, usually in a sequence where oxygen or aerated fuels were introduced and then quickly followed by an ignitor that caused explosions of varying severity—from anti-personnel fires, to blasts that blew the domes off, to really big explosions that in effect

groups using different methods. Some look like they're trying to do as little damage as possible, others seem to want to kill as many of us as they can. Make more room for emigration."

Nadia turned away, sickened. She got up and took off for the kitchen, bent slightly over her collapsed stomach, desperate to do something. In the kitchen they had turned on a generator and were microwaving frozen dinners. She helped hand them out, moving up and down a line of people sitting in the hall outside. Unwashed faces, splashed with black frostnip blisters: some people talked animatedly, others sat like statues, or slept leaning against each other. Most of them had been residents of Lasswitz, but a good number had driven in from tents or hideouts that had been destroyed from space, or attacked by ground forces. "Is stupid," an old Arab woman was saying to a gnarled little man, "My parents were Red Crescent in Bagdad when the Americans bombed it, if they have the sky is nothing you can do, nothing! We have to surrender. Surrender as soon as possible!"

"But to whom?" the little man asked wearily. "And for whom? And how?"

"To anyone, from everybody, and by radio, of course!" The woman glared at Nadia, who shrugged.

Then her wristpad beeped, and Sasha Yefremov babbled in a tinny wristphone voice; the water station north of town had gone up in an explosion, and the well it had capped was now fountaining in an artesian eruption of water and ice.

"I'll be right there," Nadia said, shocked. The town's water station tapped the lower end of the Lasswitz aquifer, which was a big one; if any significant part of the aquifer breached the surface, the water station and the town and the entire canyon they lay in would disappear in a catastrophic flood-and worse, Burroughs was located only two hundred kilometers down the slope of Syrtis and Isidis, and the flood could very conceivably run that far. Burroughs! Its population was far too large to evacuate, especially now that it had become a refuge for people escaping the war; there was simply no other place to go.

vertical and half a kilometer high. The water station was located only a couple hundred meters from the canyon's north wall, which in that area had an impressive overhang at the top. As Nadia drove with Sasha and Yeli to the water station, she quickly outlined her plan: "I think we can bring down the cliff onto the station, and if we can, the landslide ought to be enough to cap the leak."

"Won't the flood just carry the landslide's rock away?" Sasha asked.

"It will if it's a full aquifer outbreak, sure. But if we cover it when it's still just an uncapped well, then the escaping water will freeze in the landslide, and hopefully form a dam heavy enough to hold it. Hydrostatic pressure in this aquifer is only a bit greater than the lithostatic pressure of the rock over it, so the artesian flow isn't all that high. If it were we'd be dead already."

She braked the rover. Out the windshield they could see the remains of the water station, under a cloud of thin frost steam. A rover came bouncing full speed toward them, and Nadia flashed their headlights and turned the radio to the common band. It was the water station crew, a couple named Angela and Sam, rabid with the adventures of the last hour. When they had driven alongside and finished their story, Nadia explained to them what she had in mind. "It could work," Angela said. "Certainly nothing else will stop it now, it's really pumping."

"We'll have to hurry," Sam said. "It's eating the rock at an unbelievable rate."

"If we don't cap it," Angela said with a certain morbid enthusiasm, "it'll look like when the Atlantic first broke through the Straits of Gibraltar and flooded the Mediterranean basin. That was a waterfall that lasted ten thousand years."

"I never heard of that one," Nadia said. "Come on with us to the cliff and help us get the robots going."

During the ride over she had directed all the town's construction robots from their hangar to the foot of the north wall, next to the water station; when the two rovers got there, they found a few of the faster robots had already arrived, and the rest were grinding over the canyon floor toward them. There was a small talus slope at the foot of the cliff, which towered

the excavation of the town's foundation. Nadia went to work programming the vehicles to tunnel into the bottom of the cliff, and for most of an hour she was lost to the world. When she was finished she said, "Let's get back to town and get everyone evacuated. I can't be sure how much of the cliff might come down, and we don't want to bury everyone. We've got four hours."

"Jesus, Nadia!"

"Four hours." She typed in the last command and started up their rover. Angela and Sam followed with a cheer.

"You don't seem very sorry to leave," Yeli said to them.

"Hell, it was boring!" Angela said.

"I don't think that's going to be much of a problem anymore."

"Good."

The evacuation was difficult; a lot of the town's occupants didn't want to leave, and there was barely room for them in the rovers at hand. Finally they were all stuffed into one vehicle or another, and off on the transponder road to Burroughs. Lasswitz was empty. Nadia spent an hour trying to contact Phyllis by satellite phone, but the comm channels were disrupted by what sounded like a number of different jamming efforts. Nadia left a message on the satellite itself: "We're non-combatants in Syrtis Major, trying to stop the Lasswitz aquifer from flooding Burroughs. So leave us alone!" A surrender of sorts.

Nadia and Sasha and Yeli were joined in their rover by Angela and Sam, and they drove up the steep switchbacks of the cliff road, onto the south rim of Arena Canyon. Across from them was the imposing north wall; below to the left lay the town, looking almost normal; but to the right it was clear something was wrong: the water station was broken in the middle by a thick white geyser, which plumed like a broken fire hydrant, and then fell into a jumble of dirty red-white ice blocks. This weird mass shifted even as they watched, briefly exposing black flowing water which frost-steamed madly, white mists pouring out of the black cracks and then whipping down canyon on the wind. The rock and fines of the martian surface were so dehydrated that when water splashed onto them they

On their view, they saw the water station covered by the swift tumbling edge of the landslide.

Angela and Sam had been cheering. "How will we tell if it's worked?" Sasha asked.

"Wait till we can see it again," Nadia said. "Hopefully the flood downstream will have gone white. No more open water, no more movement."

Sasha nodded. They sat looking down into the ancient canyon, waiting. Nadia's mind was mostly blank; the thoughts that did occur to her were bleak. She needed more action like the last few hours', the kind of intense activity that gave her no time to think; even a moment's pause and the whole miserable situation crashed back in on her, the wrecked cities, the dead everywhere, Arkady's disappearance. And no one in control, apparently. No plan to any of it. Police troops were wrecking towns to stop the rebellion, and rebels were wrecking towns to keep the rebellion alive. It would end with everything destroyed, her whole life's work blown up before her eyes; and for no reason! No reason at all.

She couldn't afford to think. Down there a landslide had overrun a water station, hopefully, and the water rushing up the well had been blocked and frozen, making a composite dam. After that it was hard to say. If the hydrostatic pressure in the aquifer was high enough, a new breakout might be forced. But if the dam were thick enough. . . well, nothing to be done about it. Although if they could create some kind of escape valve, to take the pressure off the landslide dam. . . .

Slowly the wind tattered the dust away. Her companions cheered; the water station was gone, covered by a fresh black landslide that spilled out from the northern wall, which now had a big new arc in its rim. But it had been a close thing, not anywhere near as big a landslide as she would have hoped; Lasswitz itself was still there, and it appeared that the layer of rock over the water station was not all that thick. The flood seemed to have stopped, it was true; it was motionless, a chunky, dirty white swath, like a glacier running down the middle of the canyon. And there was very little frost steam rising from it. Still. . . .

had ever felt such a thing on Mars before. "Shit!" Yeli said, "it's going to blow again for sure!"

"We have to drill a runoff well," Nadia said. "A kind of pressure valve."

"But what if it breaks out like the main one?" Sasha asked.

"If we put it at the upper end of the aquifer, or midway so that it takes some flow, it should be fine. Just as good as the old water station, which someone probably blew up, or else it would still be working fine." She shook her head bitterly. "We have to risk it. If it works, it works. If it doesn't, then maybe we cause an outbreak. But if we don't do something, it looks like there'll be an outbreak anyway."

She led the little group down the main street to the robot warehouse in the garage, and sat down in the command center to begin programming again. A standard drilling operation, with maximum blowout baffling. The water would come to the surface under artesian pressure, and then they would direct it into a pipeline, which they would instruct a robot crew to lay in some direction that would take it out of the Arena canyon region. She and the others studied topographic maps, and ran simulated floods down several canyons paralleling Arena to north and south. They found that the watershed was huge, everything on Syrtis drained down toward Burroughs, the land was a big bowl here. They would have to pipe the water north for nearly three hundred kilometers to get it into the next watershed. "Look," Yeli said, "released into the Nili Fossae, it will run straight north onto Utopia Planitia, and freeze on the northern dunes."

"Sax must be loving this revolution," Nadia said again. "He's getting stuff they never would have approved."

"But a lot of his projects must be getting wrecked too," Yeli pointed out.

"I bet it's still a net gain, in Sax's terms. All this water on the surface. . .

."

"We'll have to ask him."

"If we ever see him again."

Yeli was silent. Then he said: "Is it that much water, really?"

"It's not just Lasswitz," Sam said. "I saw a news bit a while ago-they've broken the Lowell aquifer, a big breakout like the ones that cut the outflow

She had to work, there was no other choice. She got them going again on robot programming, and they spent the rest of that day and the next getting the robot teams out to the drilling site, and making sure the start-up went right. The drilling was straightforward; it was only a matter of making sure that pressures in the aquifer didn't cause a blowout. And the pipeline to transfer the water north was even simpler, an operation that had been fully automated for years; but they doubled up on all the equipment, just to make sure. Up the north canyon road bed, and on northward from there. No need to include pumps; artesian pressure would regulate the flow quite nicely, because when the pressure dropped low enough to stop pushing water out of the canyon, the danger of a breakout at the lower end would presumably be past. So when the mobile magnesium mills were grinding along, scooping up fines and making pipe, and when the forklifts and frontloaders were taking these pipe segments to the assembler, and when that great moving building was taking in the segments and extruding pipe behind it as it rolled slowly along up the road, and when another mobile behemoth was going over the completed pipe, and wrapping it in aerolattice insulation made from tailings from the refinery; and when the first segment of the pipeline was heated and running-then they declared the system operational, and hoped it would make it three hundred kilometers farther. The pipeline would be built at about a kilometer an hour, for twenty-four and a half hours a day; so if all went well, about twelve days to Nili Fossae. At that rate the pipeline would be done very soon after the well was drilled and ready. And if the landslide dam held that long, then they would have their pressure valve.

So Burroughs was safe, or as safe as they could make it by their efforts. They could go. But it was a question what their destination should be. Nadia sat slumped over a microwaved dinner, watching a terran news show, listening to her companions debate the issue. Horrible how the revolution was being portrayed on Earth: extremists, communists, vandals, saboteurs, reds, terrorists. Never the words rebel or revolutionary, words of which half the Earth (at least) might approve. No, they were isolated groups of insane, destructive terrorists. And it didn't help Nadia's mood

How will you get there?" Sam asked.

Nadia thought it over, took a deep breath. "Ultralite, I guess. There's some of those new 17Ds up on the south rim airstrip. That would be the fastest way for sure, and maybe even the safest, who knows." She looked at Yeli and Sasha. "Will you fly with me?"

"Yes," Yeli said. Sasha nodded.

"We want to come with you," Angela said. "It'll be safer with two planes anyway."

They took two planes that had been built by Spencer's aeronautic factory in Elysium, the latest things, called simply 17Ds, ultralite delta-winged four-seat turbojets, made mostly of aerogel and plastics, dangerous to fly because they were so light. But Yeli was an expert flier and Angela said she was too, so they climbed into two of them the next morning, after spending the night in the empty little airport, and taxied out to the packed dirt runway and took off directly into the sun. It took them a long time to rise to a thousand meters.

The planet below looked deceptively normal, its old harsh face only a bit whiter on the north faces, as if aged by its parasite infestation. But then they flew out over Arena Canyon, and saw running down it a dirty glacier, a river of broken ice blocks. The glacier widened frequently where the flood had pooled for a time. The ice blocks were sometimes pure white, but more often stained one martian shade or other, then broken and tumbled into a mix, so that the glacier was a shattered mosaic of frozen brick, sulfur, cinnamon, coal, fertilizer, cream, blood. . . . spilling down the flat bed of the canyon all the way to the horizon, some seventy-five kilometers away.

Nadia asked Yeli if they could fly north and inspect the land that the robots were going to build the pipeline over. Soon after they turned they received a weak radio message on the first hundred band, from Ann Clayborne and Simon Frazier. They were trapped in Peridier Crater, which

easternmost canyon debouched onto Utopia, there was another aquifer outbreak. At its upper end it was simply a new slump, a big bowl of land shattered like a broken plate of glass; lower down, patches of frosting black and white water surged right out of the broken land, ripping at the new blocks and carrying them away even as they watched, in a steaming flood that caused the land it touched to explode. This shocking wound was at least thirty kilometers across, and ran right over the horizon to the north, with no sign of dissipating.

Nadia stared at the sight and asked Yeli to fly nearer. "I want to avoid the steam," Yeli said, absorbed in the sight himself. Most of the white frost cloud was blowing east and falling down onto the landscape, but the wind was fitful, and sometimes the thin white veil would rise straight up, obscuring the swath of black water and white ice. The outflow was as big as one of the big Antarctic glaciers, or even bigger. Cutting the red landscape in two.

"That is a hell of a lot of water," Angela said.

Nadia switched to the first hundred band, and called Ann down in Peridier. "Ann, do you know about this?" She described what they were flying over. "And it's still running, the ice is moving, and we can see patches of open water, it looks black or sometimes red, you know."

"Can you hear it?"

"Just sort of like a ventilator hum, and some cracks and pops from the ice, yeah. But we're pretty loud up here ourselves."

"Hell of a lot of water!"

"Well," Ann said, "That aquifer isn't very big compared to some."

"How are they breaking them open? Can people really break those open?"

"Some of them," Ann said. "The ones with hydrostatic pressure greater than lithostatic pressure are in essence lifting the rock up, and it's the permafrost layer that is forming a kind of dam, an ice dam. If you drilled a well and blew it up, or if you melted it"

"But how?"

"Reactor meltdown."

"We're just turning east now," Yeli replied. "I wanted to get a visual fix on Crater Fv first."

"Good idea."

They flew on. The astounding roil of the flood dropped beneath the horizon, and they flew over the familiar old stone and sand again. Soon Peridier appeared over the horizon ahead, a low, much-eroded crater wall. Its dome was gone, tattered sheets of the fabric thrown aside, still rolling this way and that over the crater rampart, as if a seed pod had burst. The piste running south reflected the sun like a silver thread. They flew over the arc of the crater wall, and Nadia peered down at the dark buildings through binoculars, cursing in a low Slavic chant. How? Who? Why? There was no way to tell. They flew on to the airstrip out on the far crater rampart. None of the hangars were working, and they had to suit up and drive some little cars over the rim into town.

All the surviving occupants of Peridier were holed up in the physical plant. Nadia and Yeli went through its lock and gave Ann and Simon a hug, and then they were introduced to the others. There were about forty of them, living off emergency supplies, struggling to balance the gas exchange in the sealed buildings. "What happened?" Angela asked them, and they told the story in a kind of Greek chorus, interrupting each other frequently: a single explosion had burst the dome like a balloon, causing an instantaneous decompression that had also blown up many of the town's buildings. Luckily the physical plant was reinforced, and had withstood the internal pressures of its own air supply; and those inside had survived. Those out on the streets, or in the other buildings, had not.

"Where's Peter?" Yeli asked, startled and fearful.

"He's on Clarke," Simon said quickly. "He called us right after this all began. He's been trying to get a spot on one of the elevators down, but it's all police at this point, I guess there were a lot of them in orbit. He'll get down when he can. It's safer up there right now anyway, so I'm not in that much of a hurry to see him."

This made Nadia think of Arkady again. But there was nothing to be done; and quickly she set herself to the task of rebuilding Peridier. She first

I guess.

But there were very few engineers or construction specialists among them. They were mostly escarpment areologists, or miners. Basic construction was something that robots did, or so they seemed to think. It was hard to say how long they would have gone before they would have started in on the reconstruction themselves, but with Nadia there to point out what could be done, and drive them with a brief burst of withering scorn at their inactivity, they were soon under way. Nadia worked eighteen and twenty hours a day for a few days, and got a foundation wall laid, and tenting cranes into action over the rooftops; after that it was mostly a matter of supervision. Restlessly Nadia asked her companions from Lasswitz if they would join her in the planes again, and move on. They agreed; and so about a week after their arrival they took off again, with Ann and Simon joining them in Angela and Sam's plane.

###

As they flew south, down the slope of Isidis toward Burroughs, a coded message clattered abruptly over their radio speakers. Nadia dug through her pack and found a bag of stuff Arkady had given her, including a bunch of files; she found the one she wanted and plugged it into the plane's AI, and they ran the message through Arkady's decryption program. After a few seconds the AI spoke the message in its even tones:

"UNOMA is in possession of Burroughs, and detaining everyone who comes here."

There was silence in the two planes, winging south through the empty pink sky. Below them the plain of Isidis sloped down to the left.

Ann said, "Let's go there anyway. We can tell them in person to stop the assaults."

"No," Nadia replied. "I want to be able to work. And if they lock us up. . . Besides, why do you think they'd listen to what we tell them about the assaults?"

No answer from Ann.

"Can we make it to Elysium?" Nadia asked Yeli.

"Yes."

it.

###

They flew to Elysium, and landed next to South Fossa, the largest roofed canyon of them all. They found that the roof was still there; but only, it turned out, because the city had been depressurized before it had been punctured. So the inhabitants were trapped in any number of intact buildings, and trying to keep the farm alive. There had been an explosion at the physical plant, and several others in the town itself. So there was a lot of work to be done, but there was a good base for a quick recovery, and a more enterprising population than the group in Peridier. So Nadia threw herself into it as before, determined to fill every waking moment with work. She could not stand to be idle; she worked every moment she was awake, her old jazz tunes running through her mind-nothing appropriate, there was no jazz or blues appropriate to this-it was all completely incongruous, "On the Sunny Side of the Street," "Pennies From Heaven," "A Kiss To Build a Dream On". . . .

And in those hectic days on Elysium she began to realize just how much power the robots had. In all her years of construction she had never really tried to exert that power to the full; there simply had been no need. But now there were hundreds of jobs to be done, more than could be accomplished even with a total effort, and so she took the system right out to the bleeding edge as programmers would say, and saw just how much that effort could do, even as she tried to figure out how to do more. She had always considered teleoperation to be a basically local procedure, for instance, but it wasn't necessarily so; using relay satellites she could drive a bulldozer in the other hemisphere, and now, whenever she could establish a good link, she did so. She did not stop working for even a single waking second; she worked as she ate, she read reports and programs in the bathroom, and she never slept except when exhaustion knocked her out. While in this timeless state she told anyone and everyone she worked with what to do, without regard for their opinion or comfort; and in the face of her monomaniacal concentration, and the authority of her grasp of the situation, people obeyed her.

survivors on the western slope, and they were pulled out of the other canyons and brought to South, and then sent back out with jobs to do. The roofing crews moved from canyon to canyon, and their ex-occupants went to work underneath, readying for the pump-ups. At that point Nadia turned her attention to other matters, programming toolmakers, starting robot linemen along the broken pipelines from Chasma Borealis. "Who did all this?" she said with disgust, staring one night at the TV's image of burst water pipes.

The question was torn out of her; in reality she didn't want to know. She didn't want to think about the bigger picture, about anything but that pipeline there, broken on the dunes. But Yeli took her at her word, and said, "It's hard to tell. The Terran news programs are all about Earth now, there's only an occasional clip from here, and they don't know what to make of it either. Apparently the next few shuttles are bringing UN troops, who are supposed to restore order. But most of the news is about Earth-the Middle East war, the Black Sea, Africa, you name it. A lot of the Southern Club is bombing flag of convenience countries, and the Group of Seven has declared they're going to defend them. And there's a biological agent loose in Canada and Scandinavia."

"And maybe here too," Sasha interrupted. "Did you see that clip of Acheron? Something happened there, the windows of the habitat are all blown out, and the land underneath the fin is covered with these growths of God knows what, no one wants to get near enough to find out. . . ."

Nadia closed her mind to their talk, and concentrated on the problem of the pipeline. When she returned to real time, she found that every single robot she could find was in action reconstituting the towns, and the factories were busily pumping out more bulldozers, earthmovers, dump trucks, backhoes, frontloaders, steamrollers, framers, foundation diggers, welders, cement makers, plastic makers, roofers, everything. The system was at full pump, and there wasn't enough to occupy her anymore. And so she told the others she wanted to take off again, and Ann and Simon and Yeli and Sasha decided to accompany her; Angela and Sam had met friends in South Fossa, and were going to stay.

together would have conjured obedient beasts out of the sand. First the factories, then the assembly plants, then the construction robots themselves, vehicles as big and articulated as a city block, doing their work in their absence. It really was confounding, their new power.

And yet all of it was as nothing in the face of human destructiveness. The five travelers flew from ruin to ruin, becoming numb to the damage and to the dead. Not that they were insensible to their own danger; after passing over a number of wrecked planes in the Hellas-Elysium flight corridor, they switched to night flights. These flights were more dangerous than day flights in many ways, but Yeli was more comfortable with their level of stealth. The 17Ds were nearly invisible to radar, and would leave only the faintest traces on the most powerful tight-focus IR detectors. All of them were willing to take the risk of that minute exposure. Nadia didn't care at all, she would have been happy to fly by day. She lived in the moment as much as she could, her thoughts ran in circles as she kept trying to drag them back to the moment; stunned by the waste of all that had been destroyed, she was becoming far distanced from her emotions. She only wanted to work.

And Ann, some part of Nadia noticed, was worse. Of course she must have been worried about Peter. And then all the destruction as well; for her it was not the structures but the land itself, the floods, the mass wasting, the snow, the radiation. And she had no work to distract her. Her work would have been the study of the damage. And so she did nothing, or tried to help Nadia when she could, moving around like an automaton. Day after day they worked at initiating the repair of one ruined structure or another, a bridge, a pipeline, a well, a power station, a piste, a town. They lived in what Yeli called Waldo World, ordering robots about as if they were slavemasters or magicians, or gods; and the machines went to work, trying to reverse the film of time and make broken things fly back together. With the luxury of haste they could be sloppy, and it was incredible how fast they could initiate construction, and then fly on. "In the beginning was the word," Simon said wearily one evening, punching at his wristpad. A bridge crane swung across the setting sun. And then they were off again.

people killed, people who might have lived a thousand years-and, of course, no word of Arkady. It had been twenty days now. People were saying he might have been forced into complete hiding, to avoid being killed by a strike from orbit. But Nadia no longer believed this, except in moments of extreme desire and pain, the two emotions surging up through the obsessive work mode in a brand-new mixture, a new feeling that she hated and feared: desire causing pain, pain causing desire-a hot fierce desire, that things not be as they were. How painful such a desire was! But if she worked hard enough, there was no time for it. No time to think or feel.

They flew over the bridge spanning Harmakhis Vallis, on the eastern border of Hellas; it was down. Repair robots were cached in endhouses on all major bridges, and these could be adapted to total reconstruction of the spans, although they would be slow at it. The travelers got them going, and that evening, after finishing the last programs, they sat down to microwaved spaghetti in the plane's cabins, and Yeli turned on the Terran TV channel again. There was nothing but static and a snaking, destroyed image. He tried switching channels, but all the channels were the same. Dense, buzzing static.

"Have they blown up Earth too?" Ann said.

"No no," Yeli said. "Someone's jamming it. The sun is between us and it, these days, and you would only have to interfere with a few relay stations to cut contact."

They stared glumly at the fizzing screen. In recent days the local areosynchronous communications satellites had been going down left and right; shut down or sabotaged, it was impossible to say. Now, without the Terran news, they would really be in the dark. Surface-to-surface radio was limited indeed, given the tight horizons and the lack of an ionosphere; not much more range than walker intercoms, really. Yeli tried a variety of stochastic resonance patterns, to see if he could cut through the jamming. The signals were scrambled beyond repair. He gave up with a grunt, punched out a search program. The radio oscillated up and down through the hertz, gathering static and stopping at the occasional faint punctuation:

that losing the electronic information net was like losing one of their senses; Nadia kept glancing down at her wristpad, on which, until this breakdown, Arkady could have appeared any second; on which any of the first hundred might have showed up, and declared themselves safe; and then she would look up from the little blank square at the land around her, suddenly so much bigger and wilder and emptier than it had ever been before. It was frightening, truly. Nothing but jagged rust hills for as far as the eye could see, even when flying in the airplanes at dawn and looking for one of the little landing strips marked on the map, which when spotted would resemble little tan pencils. Such a big world! And they were alone in it. Even navigation could no longer be taken for granted, no longer be left to the computers; they had to use road transponders, and dead reckoning, and visual fixes, peering down anxiously in the dawn twilight to spot the next airstrip in the wilderness. Once it took them well into the morning to find a strip near Dao Vallis; after that Yeli began to follow pistes, flying low through the night and watching the silvery ribbon snake below them through the starlight, checking transponder signals against the maps.

And so they managed to fly down in the broad lowland of Hellas basin, following the piste to Low Point Lakefront. Then in the horizontal red light and long shadows of sunrise, a sea of shattered ice came over the horizon into view. It filled the whole western part of Hellas. A sea.

The piste they had been following ran right into ice. The frozen shoreline was a jagged tangle of ice plates that were black or red or white or even blue, or a rich jade green—all piled together, as if a tidal wave had crushed Big Man's butterfly collection, and left it strewn over a barren beach. Beyond it the frozen sea stretched right over the horizon.

After many second's silence, Ann said, "They must have broken the Hellespontus aquifer. That was a really big one, and it would drain down to Low Point."

"So the Hellas mohole must be flooded!" Yeli said.

"That's right. And the water at the bottom of it will heat up. Probably hot enough to keep the surface of the lake from freezing. Hard to say. The air is cold, but with the turbulence there might be a clear spot. If not, then right

frosting like an open freezer door, and they were colored across the whole spectrum, heavy on the reds of course, but this only made the occasional blues and greens and yellows stand out more vividly, the focus points of an immense, chaotic mosaic.

And there at its center-where, even flying as high as they were, the ice sea still extended to the horizon in every direction-there was an enormous steam cloud, rising thousands of meters into the air. Circling this cloud cautiously, they saw that the ice underneath it was broken into bergs and floes, floating tight-packed in roiling, steaming black water. The dirty bergs rotated, collided, turned turtle and caused thick walls of red-black water to splash upward; when these walls fell back down, waves expanded out in concentric circles, bobbing all the bergs up and down as they passed.

There was silence in the two planes as they stared down at this most unmartian spectacle. Finally, after two mute circumnavigations of the steam column, they flew on westward over the shattered waste. "Sax must be loving this revolution," Nadia said as she had before, breaking the silence. "Do you think he's part of it?"

"I doubt it," Ann said. "He probably wouldn't risk his Terran investment. Nor an orderly progression to the project, or some kind of control. But I'm sure he's evaluating it in terms of how it affects the terraforming. Not who's dying, or what's getting wrecked, or who's taking over here. Just how it affects the project."

"An interesting experiment," Nadia said.

"But hard to model," Ann said. They both had to laugh.

###

Speak of the devil-they landed west of the new sea (Lakefront was drowned), and spent the day resting; and the next night as they followed the piste northwest toward Marineris, they flew over a transponder that was blinking S.O.S. in Morse code. They circled the transponder until dawn, and landed on the piste itself, just beyond a disabled rover. And next to it was Sax, in a walker, fiddling with the transponder to send his manual S.O.S.

a nuclear explosion, but with a smaller cap," he noted. "The temperature gradient isn't so steep in our atmosphere."

After that he had turned back, and gone to the edge of the basin to see some of the flooding. The water running down the basin from the north had been black but kept going white, icing over in big segments almost instantaneously, except around Lakefront, where it had bubbled "like water on the stove. Thermodynamics were pretty complex there for a while, but the water cooled the mohole pretty fast, and-"

"Shut up, Sax," Ann said.

Sax lifted his eyebrows, and went to work improving the plane's radio receiver.

###

They flew on, six of them now, Sasha and Yeli, Ann and Simon, Nadia and Sax: six of the first hundred, gathered together as if by magnetism. There was a lot to talk about that night, and they exchanged stories, information, rumors, speculations. But Sax could add little concrete to the overall picture. He had been cut off from the news just like they had. Again Nadia shuddered as if at a lost sense, realizing that this was a problem that wasn't going to go away.

The next morning at sunrise they landed at Bakhuysen's airstrip, and were met by a dozen people carrying police stun guns. This little crowd kept their gun barrels down, but escorted the six with very little ceremony into the hangar inside the crater wall.

There were more people in the hangar, and the crowd grew all the time. Eventually there were about fifty of them, about thirty of them women. They were perfectly polite, and, when they discovered the travelers' identities, even friendly. "We just have to make sure who we're dealing with," one of them said, a big woman with a strong Yorkshire accent.

"And who are you?" Maya asked boldly.

"We're from Korolyov Prime," she said. "We escaped."

They took the travelers into their dining hall, and treated them to a big breakfast. When they were all seated, people took up magnesium jugs and reached across the table to pour their neighbor's apple juice, and their

prisoners had agreed to rendezvous there if a breakout ever occurred.

"So are you with Arkady?" Maya asked.

"Who?"

It turned out they were followers of the biologist Schnelling, who from the sound of it had been a kind of red mystic, held in Korolyov with them, where he had died a few years before. He had given wrist lectures that had been very popular on Tharsis, and after his incarceration many of the prisoners in Korolyov had become his students. Apparently he taught them a kind of martian communalism based on principles of the local biochemistry; the group at Bakhuisen wasn't very clear about it, but now they were out, and hoping to contact other rebel forces. They had succeeded in establishing contact with a stealthed satellite, programmed to operate in directed microbursts; they had also managed briefly to monitor a channel being used by security forces on Phobos. So they had a little news. Phobos, they said, was being used as a surveillance and attack station by transnational and UNOMA police forces, recently arrived on the latest continuous shuttle. These same forces had control of the elevator, of Pavonis Mons, and of most of the rest of Tharsis; the Olympus Mons observatory had rebelled, but been firestormed from orbit; and transnational security forces had occupied most of the great escarpment, effectively cutting the planet in two. And the war on Earth appeared to be continuing, although they had the impression it was hottest in Africa, Spain, and the US-Mexican border.

They thought it was useless to try going to Pavonis; "they'll either lock you up or kill you," as Sonja put it. But when the six travelers decided to try anyway, they were given precise directions to a refuge a night's flight to the west; it was the Southern Margaritifer weather station, the Bakhuisen people told them. Occupied by Bogdanovists.

Nadia's heart leaped when she heard that word, she couldn't help it. But Arkady had a lot of friends and followers, and none of them seemed to know where he was. Still, she found herself unable to sleep that day, her stomach again tied in a knot. That night at sunset she was happy to return the planes and take off. The rebels in Bakhuisen sent them on their way

energy on keeping a visual fix on the other plane. The planes hummed along, winds keening over their long flexible wings. It was sixty degrees below zero outside, the air only 150 millibars and poisonous; and there was no shelter on the black planet below, for many kilometers in every direction. Nadia would pilot for a while, then move to the back, and twist and turn, and try to sleep. Often the click of a transponder over the radio, combined with the general aspect of their situation, would remind her of the time she and Arkady had ridden the storm in the Arrowhead. She would see him then, striding red-bearded and naked through the broken interior of the dirigible, tearing away paneling to throw overboard, laughing, fines floating in a nimbus around him-then the 17D would jerk her awake, and she would twist with the discomfort of her fear. It would have helped to pilot again, but Yeli wanted to as much as she, at least for the first couple of hours of his watch. There was nothing for it but to help him watch for the other plane, always a kilometer to the right if all was well. They had occasional radio contact with the other plane, but microbursted the calls, and kept them to a minimum; hourly checks, or inquiries if one fell behind. Everything had taken on ritualistic qualities, and in the dead of night it sometimes seemed this was all any of them had ever done, it was hard to recall what life had been like before the revolt. And what had it been, twenty-four days? Three weeks, though it felt like five years.

And then the sky would begin to bleed behind them, high cirrus clouds turning purple, rust, crimson, lavender, and then swiftly to metal shavings, in a rosy sky; and the incredible fountain of the sun would pour over some rocky rim or scarp, and they would search anxiously as they ghosted over the pocked and shadowed landscape, looking for some sign of an airstrip by the piste. After the eternal night it seemed impossible that they would have navigated successfully to anything at all, but there lay the gleaming piste below, which they could land on directly in an emergency. And the transponders being all individually identifiable, and pegged to the map, their navigation was always more sure than it seemed; so every dawn they would spot a strip down in the shadows ahead, a welcome blond pencil strip of perfect flatness. Down they would glide, thump against the ground,

were indeed receiving six of the first hundred, they burst into cheers, and carried on in the very highest of spirits. In fact when the six were lead through a lock into a commons, several their hosts went over immediately to some small tanks, and breathed in hits of what proved to be nitrous oxygen and an pandorphin aerosol, after which they laughed themselves silly.

One of them, a slender fresh-faced American, introduced himself. "I'm Steve, I trained with Arkady on Phobos in 12, and worked with him on Clarke. Most of us here worked with him on Clarke. We were in Schiaparelli when the revolution began."

"Do you know where Arkady is?" Nadia asked.

"Last we heard he was in Carr, but now he's out of the net, which is the way it should be."

A tall skinny American shambled up to Nadia, and put his hand on her shoulder and said, "We're not always like this!" and laughed.

"We're not!" Steve agreed. "But it's a holiday today! You haven't heard?"

A giggling woman scraped her face off the table and cried, "Independence Day! Fourteen the Fourteenth!"

"Watch, watch this," Steve said, and pointed at their TV.

An image of space flickered onto the screen, and suddenly the whole group was yelling and cheering. They had locked onto a coded channel from Clarke, Steve explained, and though they could not decode its messages, they had used it as a beacon to aim their station's optical telescope. The image from the telescope had been transferred onto the commons TV, and there it was, the black sky and the stars blocked at the center by the shape they had all learned to recognize, the squared-off metallic asteroid with the cable extending out of it. "Now watch!" they yelled at the puzzled travelers. "Watch!"

They howled again, and some of them began a ragged countdown, starting at one hundred. Some of them were inhaling helium as well as nitrous oxide, and these stood below the big screen singing, "We're off to see the wizard, the wonderful wizard of Oz! Because, because, because,

sure to be down! It's been weeks since he called!

Slowly it got quiet. Nadia found herself at Ann's side, across from Simon and Sasha. She didn't know what to say. Ann was rigid, her eyes bugged out horribly.

"How did you break the cable?" Sax asked.

"Well, the cable's pretty much unbreakable," Steve replied.

"You broke the cable?" Yeli exclaimed.

"Well, no, we separated the cable from Clarke, is what we did. But the effect is the same. That cable is on its way down."

The group cheered again, somewhat more weakly. Steve explained to the travelers over the noise: "The cable itself was pretty much impervious, it's graphite whisker with a diamond sponge-mesh gel double-helixed into it, and they've got smart pebble defense stations every hundred kilometers, and security on the cars that was intense. So Arkady suggested we work on Clarke itself. See, the cable goes right through the rock to the factories in the interior, and the actual end of it was physically as well as magnetically bonded to the rock of the asteroid. But we landed with a bunch of our robots in a shipment of stuff from orbit, and dug into the interior and placed thermal bombs outside the cable casing, and around the magnetic generator. Then today we set them all off at once, and the rock went liquid at the same time the magnets were interrupted, and you know Clarke is going like a bullet, so it slipped right off the cable end just like that! And we timed it so that it's going directly away from the sun, and twenty-four degrees out of the plane of the ecliptic as well! So it'll be damned hard to track it down. At least we hope so!"

"And the cable itself?" Sasha said.

It got loud with cheers again, and it was Sax who answered her, in the next quiet moment: "Falling," he said. He was at a computer console, typing as fast as he could, but Steve called out to him, "We have the figures on the descent if you want them. It's pretty complex, a lot of partial differential equations."

"I know," Sax said.

"We didn't know," Steve said to Ann and Simon. His expression of triumph was gone, he was frowning with concern. "If we had known, I guess we could have tried to contact him. But we didn't know. I'm sorry. Hopefully-" he swallowed. "Hopefully he wasn't up there."

Ann walked back to their table, sat down. Simon hovered anxiously at her side. Neither of them appeared to have heard anything Steve had said.

###

Radio traffic increased somewhat, as those in control of the remaining communications satellites got the news about the cable. Some of the celebrating rebels got busy monitoring and recording these messages; other continued to party.

Sax was still absorbed by the equations on the screen. "Going east," he remarked.

"That's right," Steve said. "It'll make a big bow in the middle at first, as the lower part pulls down, and then the rest will follow."

"How fast?"

"That's hard to say, but we think about four hours for the first time around, and then an hour for the second time around."

"Second time around!" Sax said.

"Well, you know, the cable is 37,000 kilometers long, and the circumference at the equator is twenty-one thousand. So it'll go around almost twice."

"The people on the equator had better move fast," Sax said.

"Not exactly the equator," Sam said. "The Phobos oscillation will cause it to swerve away from the equator to a certain extent. That's actually the hardest part to calculate, because it depends where the cable was in its oscillation when it began to fall."

"North or south?"

"We should know in the next couple of hours."

The six travelers stared helplessly at the screen. It was quiet for the first time since their arrival. The screen showed nothing but stars. No vantage point existed from which to view the elevator's fall; the cable, never visible

through the turning planet. Though north of them, they thought it was south of the equator. A staticky, panicky voice from Sheffield asked them for confirmation of this; the cable had already fallen across half the city and a line of tents east of it, all the way down the slope of Pavonis Mons and across east Tharsis, flattening a zone ten kilometers wide with its sonic boom; it would have been worse, but the air was so thin at that elevation that it did not carry much force. Now the survivors in Sheffield wanted to know whether to run south to escape the next wrapping, or try to get around the caldera to the north.

They got no reply. But more escapees from Korolyov, on the south rim of Melas Chasma in Marineris, reported over one of the rebel channels: the cable was now falling so hard it was shattering on impact. Half an hour later an Aureum drilling operation called in; they had gone out after the sonic booms, and found a mound of glowing brecciated debris, stretching from horizon to horizon.

There was an hour's absence of any new hard information, nothing but questions and speculation and rumor. Then one of the headphoned listeners leaned back and showed thumbs up to the rest of them, and clicked on the intercom, and an excited voice came on yelling through the static: "It's exploding! It came down in about four seconds, it was burning top to bottom and when it hit the ground everything jumped right under our feet! We're having trouble with a leak here. We figure we're about eighteen kilometers south of where it hit, and we're twenty-five south of the equator, so you should be able to calculate the rest of the wrap from that, I hope. It was burning from top to bottom! Like this white line cutting the sky in half! I've never seen anything like it. I've still got afterimages in my vision, they're bright green. It was like a shooting star had stretched. . . . Wait, Jorge is on the intercom, he's out there and saying it's only about three meters high where he is. It's soft regolith here, so the cable's in a trench it smashed for itself. He says it's so deep in places you could bury it and have a level surface. Those'll be like fords, he says, because in other places it stands five or six meters high. I guess it'll do that for hundreds of kilometers at a stretch! It'll be like the Great Wall of China."

a dangerous place to be, deadlier if you were not up on a prominence and many kilometers away-it would look like a kind of meteor strike, and cross from horizon to horizon in less than a second. Sonic booms to follow.

"Let's go out and have a look," Steve suggested with a guilty glance at Ann and Simon. A lot of them suited up and went outside. The travelers contented themselves with a video image piped in from the exterior camera, alternating that with video clips gleaned from the satellites. Clips shot from the night side surface were spectacular; they showed a blazing curved line, cutting down like the edge of a white scythe that was trying to chop the planet in two.

Even so they found it hard to concentrate, hard to focus on what they were seeing and understand it, much less feel anything about it. They had been exhausted when they had landed, and now they were even more exhausted, and yet it was impossible to sleep; more and more video clips were being passed along, some from robot cameras flying in drones on the day side, showing a blackened steaming swath of desolation-the regolith blasted to the side in two long parallel ejecta dikes, banking a canal full of blackness, black all studded with a brecciated mix of stuff which got more exotic as the impact became more severe, until finally a drone camera sent along a clip of a horizon-to-horizon trench of what Sax said must be rough black diamonds.

The impact in the last half hour of the fall was so strong that everything far to north and south was flattened; people were saying that no one close enough to actually see the cable hit survived it, and most of the drone cameras had been smashed as well. For the final thousands of kilometers of the fall, there were no witnesses.

A late clip came in from the west side of Tharsis, from the second pass up that great slope. It was brief but powerful: a white blaze in the sky, and a explosion running up the west side of the volcano. Another shot, from a robot in West Sheffield, showed the cable blasting by just to the south; then an earthquake or sonic blast struck, and the whole rim district of Sheffield fell off the rim in a mass, dropping slowly to the caldera floor four kilometers below.

speakers missed and crackled.

###

They saw the new equator line in person, the southernmost one anyway, on the second night of their flight toward Shalbatana Vallis. In the dark it was a broad straight black swath, leading them west. As they flew over it Nadia stared down somberly. It hadn't been her project, but it was work, and work destroyed. A bridge brought down; and bringing down a bridge was always a dubious proposition.

And that black line was also a grave. Not many people on the surface had been killed, except on the east side of Pavonis, but most if not all of those on the elevator must have been, and that in itself meant several thousand people. Most of whom had probably been all right until their part of the cable hit the atmosphere and burned up.

As they flew over the wreckage Sax intercepted a new video of the fall. Someone had already stitched up a chronological montage from all the images that had been sent onto the net live or in the hours immediately afterward. In this montage, a very effective bit of work, the final clip was of the last section of the cable, exploding into the landscape. The impact zone was never anything but a moving white blob, like a flaw in the tape; no video was capable of registering such illumination. But as the montage continued the images had been slowed down and processed in every way possible, and one of these processed images was the final clip, an ultra-slow motion shot in which one could see details that would have been impossible to spot live. And so they could see that as the line had crossed the sky, the burning graphite had stripped away first, leaving an incandescent double helix of diamond, flowing majestically out of a sunset sky.

All a gravestone, of course, the people on it already dead at that point, burned away; but it was hard to think of them when the image was so utterly strange and beautiful, a vision of some kind of fantasy DNA, DNA from a macroworld made of pure light, plowing into our universe to germinate a barren planet. . . .

them to go out and repair pipelines, but she did not think they were convinced.

###

That evening they took off once more, again laden with supplies given to them by their hosts. And the following dawn they landed on the abandoned airstrip of Carr Crater. Before eight, Nadia and Sax and Ann and Simon and Sasha and Yeli were out in walkers, and up to the crater rim.

The dome was gone. There had been a fire below. All the buildings were intact but scorched, and almost all their windows had been broken or melted. Plastic walls were bent or deformed; concrete was blackened. There were splashes of soot scattered everywhere, and piles of soot scattered here and there on the ground, little heaps of blackened carbon. Sometimes they looked like Hiroshima shadows. Yes, they were bodies. The outlines of people trying to claw down through the sidewalks. "The city's air was hyperoxygenated," Sax ventured. In such an atmosphere human skin and flesh were combustible and flammable. That was what had happened to those early Apollo astronauts, stuck in a test capsule filled with an atmosphere of pure oxygen; when the fire started they had burnt like paraffin.

And so here. Everyone on the streets had caught fire and rushed around like torches, one could see that by the placement of the soot piles.

The six old friends walked down together into the shadow of the eastern crater wall. Under a circular dark pink sky they stopped at the first clutch of blackened bodies, and then walked quickly on. They opened doors in buildings when it was possible, and knocked on all the jammed doors, and listened at the walls with a stethoscope device Sax had brought along. No sound but their own heartbeats, loud and fast at the backs of their coppery throats.

Nadia stumbled around, her breath harsh and ragged. She forced herself to look at the bodies she passed, trying to estimate heights from the black piles of carbon. Like Hiroshima, or Pompeii. People were taller now. They still burnt to the bone, though, and even the bones were thin black sticks.

They flew west for eleven more days, hiding through the daylight hours under stealth blankets, or taking shelter with people they encountered en route. During the nights they followed transponders, or the directions of the last group with which they had stayed. Though these groups often knew of each others' existence and location, they were definitely not parts of a single resistance, or coordinated in any way: some hoped to make it to the south polar cap like the prisoners from Korolyov, others had never heard of this refuge; some were Bogdanovists, others were revolutionaries following different leaders; some were religious communes or utopian experiments, or nationalist groups trying to contact their governments back home; and some were merely collections of survivors without a program, orphaned by the violence. The six travelers even stopped at Korolyov itself, but they did not attempt to enter when they saw the naked frozen bodies of guards outside the locks, some of them propped in standing positions like statues.

After Korolyov, they encountered no one. The radios and TVs went dead as satellites were shot out; the pistes were empty; the Earth was on the other side of the sun. The landscape seemed as barren as before their arrival, except for the spreading patches of frost. They flew on as if they were the only people in the world, the sole survivors.

White noise buzzed in Nadia's ear, something to do with the plane's ventilators no doubt. She checked the ventilators, but they were okay. The others gave her chores to do, let her go on walks by herself before take-off, and after landing. They were stunned themselves by what they had found at Carr and Korolyov, and unable to bring much to the effort of cheering her up, which she found a relief. Ann and Simon were still worried about Peter. Yeli and Sax were worried about their food supplies, dropping all the time; the plane's cabinets were nearly bare.

But Arkady was dead, and so none of that mattered. The revolt seemed to Nadia more a waste than ever, an unfocused spasm of rage, the ultimate cutting off one's nose to spite one's face. The whole world, wrecked! She

and most of those still in space, where they have a good view but are very vulnerable. So if they manage to subdue a force in Syrtis, there is another in the Hellespontus. Imagine space-based forces trying to stop a revolution in Cambodia, but also in Alaska, Japan, Spain, Madagascar. How do you do it? You can't. I only wish that Arkady Nikolayevich had lived to see it, he would have."

The microburst ended abruptly. Perhaps a bad sign, perhaps not. But even Alex hadn't been able to keep a note of discouragement out of his voice, when he talked about Arkady. It was impossible; Arkady had been so much more than a political leader-everybody's brother, a natural force, the voice of one's conscience. One's innate sense of what was fair and just. One's best friend.

Nadia stumped through her grief, helping to navigate their flights by night, sleeping as much as she could through the days. She lost weight. Her hair turned pure white, all the remaining gray and black hairs coming out in her brush. She found it hard to speak. It felt like her throat and guts had petrified. She was a stone, it was impossible to weep. She went about her business instead. No one they met had any food to spare, and they were running out themselves. They set a strict rationing schedule, dividing meals in half.

And on the thirty-second day of their journey from Lasswitz, after a journey of some ten thousand kilometers, they came to Cairo, up on the southern rim of Noctis Labyrinthus, just to the south of the southernmost strand of the fallen cable.

###

Cairo was under the de facto control of UNOMA, in that no one in the city had ever claimed otherwise, and like all the rest of the big tent cities it lay helpless under the orbiting lasers of UNOMA police ships, which had burned into orbit sometime in the last month. Also most of the inhabitants of Cairo at the beginning of the war had been Arab and Swiss, and in Cairo, at least, people of both nationalities seemed only to be trying to stay out of harm's way.

two T7DS behind and walk into a city, and she was not reassured once through the lock, when she saw that most people inside were wearing their walkers and carrying their helmets with them, ready for depressurization if it came.

They went to the city offices, and there found Frank and Maya, as well as Mary Dunkel and Spencer Jackson. They all greeted each other with relief, but there was no time for catching up on their various adventures; Frank was busy before a screen, talking to someone in orbit by the sound of it, and he shrugged off their hugs and kept talking, waving once later to acknowledge their appearance. Apparently he was hooked into a functioning communications system, or even more than one, because he stayed in front of the screen talking to one face or another for the next six hours straight, pausing only to sip water or make another call, not sparing another glance for his old compatriots. He seemed to be in a permanent fury, his jaw muscles bunching and unbunching rhythmically; other than that he was in his element, explaining and lecturing, wheedling and threatening, inquiring and then commenting impatiently on the answers he got. Wheeling and dealing in his old style, in other words, but with an angry, bitter, even frightened edge, as if he had walked off a cliff and was trying to argue his way back to ground.

When he finally clicked off, he leaned back in his seat and sighed histrionically, then rose stiffly from his seat and came over to greet them, putting a hand briefly on Nadia's shoulder. Aside from that he was brusque with all of them, and completely uninterested in how they had managed to make it to Cairo. He only wanted to know whom they had met, and where, and how well these scattered parties were doing, and what they intended. Once or twice he went back to his screen and contacted these groups immediately upon being informed of their location, an ability that stunned the travelers, who had assumed that everyone was as cut off as they had been. "UNOMA links," Frank explained, running a hand over his swarthy jaw. "They're keeping some channels open for me."

"Why?" Sax said.

were broken open, I was pretty sure. They broke one at the mouth of Chasma Borealis, it's pouring out onto the Borealis dunes."

"The weight of the polar cap probably puts that one under a good bit of pressure," Ann said.

"Do you know what happened to the Acheron group?" Sax asked Frank.

"No. They've disappeared. It might be like with Arkady, I'm afraid." He glanced at Nadia, pursed his lips unhappily. "I should get back to work."

"But what's happening on Earth?" Ann demanded. "What does the UN have to say about all this?"

" 'Mars is not a nation but a world resource,' " Frank quoted heavily. "They're saying that the tiny fraction of humanity that lives here can't be allowed to control the resources, when the human material base as a whole is so deeply stressed."

"That's probably true," Nadia heard herself say. Her voice was harsh, a croak. It felt like she hadn't spoken in days.

Frank shrugged.

Sax said, "I suppose that's why they've given the transnationals such a free hand. It seems to me there's more of their security here than UN police."

"That's right," Frank said. "It took the UN a while to agree to deploy their peacekeepers."

"They don't mind having the dirty work done by someone else."

"Of course not."

"And Earth itself?" Ann asked again.

Frank shrugged. "The group of seven seems to be getting things under control." He shook his head. "It's hard to say from here, it really is."

He went to his screen to make more calls. The others went off to eat, to clean up, to sleep, to catch up on friends and acquaintances, on the rest of the first hundred, on what news there was from Earth. The flags of convenience had been destroyed by attacks from the have-nots in the south, but apparently the transnationals had fled to the group of seven, and had been taken in and defended by the seven's giant militaries. The twelfth attempt at a cease fire had held for several days now.

Frank was now trying to muscle the process along by the sheer force of his anger at his lack of influence. She found she could not stand to be around him; things were bad enough without his black bile.

But with Sax's help, he got an independent signal to Earth, by contacting Vega and getting the technicians there to transmit messages back and forth. That meant a few hours between transmission and reception, but in a long couple of days after that, he got in five coded exchanges with Secretary of State Wu, and while waiting through the night for return messages, the people on Vega filled the gaps with tapes of Terran news programs that they had not seen. All these reports, when they referred to the Martian situation at all, portrayed the insurrection as a minor disruption caused by criminal elements, principally by escaped prisoners from Korolyov, who had gone on a rampage of senseless property damage, in the process killing great numbers of innocent civilians. Clips of the frozen naked guards outside Korolyov were featured prominently in these reports, as were satellite telephotos of the aquifer outbursts. The most skeptical programs mentioned that these and all other clips from Mars were provided by UNOMA; and some stations in China and the Netherlands even questioned the accuracy of the UNOMA accounts. But they provided no alternative explanation of events, and for the most part, the Terran media disseminated the transnationals' version of things. When Nadia pointed this out, Frank snorted. "Of course," he said contemptuously. "Terran news is a transnational." He turned off the sound.

Behind him Nadia and Yeli leaned forward instinctively on the bamboo couch, as if that might help them to hear the silent clip better. Their two weeks of being cut off from outside news had seemed like a year, and now they watched the screen helplessly, soaking in whatever information they could. Yeli even stood to turn the sound back up, but a view of Frank from the side stopped him; Frank was asleep in his chair, his chin on his chest. When a message from the State Department came in he jerked awake, turned up the sound, stared at the tiny faces on the screen, snapped out a reply in a hoarse rasp. Then he closed his eyes and slept again.

the city wall, it looked like a construction site, and suddenly she found tears running down her face. On she walked. It was nice to be able to walk around in the open light of day.

Eventually she returned to the city offices. Frank was standing over Maya, who was asleep on a couch. He stared down at her with a blank expression, then looked up bleary-eyed at Nadia. "She's really out."

"Everyone's tired."

"Hmph. What was it like at Hellas?"

"Under water."

He shook his head. "Sax must be loving it."

"That's what I kept saying. But I think it's too out of control for him."

"Ah yes." He closed his eyes, appeared to sleep for a second or two.

"I'm sorry about Arkady."

"Yes."

Another silence. "She looks like a girl."

"A little." Actually Nadia had never seen Maya look older. They were all pushing eighty, they couldn't keep the pace, treatments or not. In their minds they were old.

"The folks on Vega told me that Phyllis and the rest of the people on Clarke are going to try to get across to them in an emergency rocket."

"Aren't they out of the plane of the ecliptic?"

"They are now, but they're going to try to push down to Jupiter, and use it to swing back downsystem."

"That'll take a year or two, won't it?"

"About a year. Hopefully they'll miss entirely, or fall into Jupiter. Or run out of food."

"I take it you're not happy with Phyllis."

"That bitch. She's responsible for a lot of this. Pulling in all those transnats with promises of every metal ever put to use-she figured she would be queen of Mars with all those folks backing her, you should have seen her up there on Clarke, looking down at the planet like a little tin god. I could have strangled her. How I wish I could have seen her face when Clarke took off and went flying!" He laughed harshly.

had heard from Samantha the whole month of the war.

So all the first hundred in town went to the north gate of Cairo that afternoon to greet them. Cairo's north gate looked down a long natural ramp that ran into one of the southernmost canyons of Noctis; the road rose up from the canyon floor on this ramp, and they could see all the way down it to the canyon bottom. There, in the early afternoon, came a rover caravan, churning up a small dust cloud and moving slowly.

It was nearly an hour before the cars rolled up the last part of the ramp. They were no more than three kilometers away when great goutts of flame and ejecta burst into being among them, knocking some rovers into the cliff wall, some over the ramp into space. The rest twisted to a halt, shattered and burning.

Then an explosion rocked the north gate, and they dove for the wall. Cries and shouts over the common band. Nothing more; they stood back up. The fabric of the tent still held, although the gate lock was apparently stuck fast.

Down on the road thin plumes of tan smoke lofted into the air, tattering to the east, pulled back down into Noctis on the dusk wind. Nadia sent a robot rover down to check for survivors. Wristpads crackled with static, nothing but static, and Nadia was thankful for that; what could they have hoped for? Screams? Frank was cursing into his wristpad, switching between Arabic and English. Trying vainly to find out what had happened. But Alexander, Evgenia, Samantha. . . . Nadia looked fearfully at the little images on her wrist, directing the robot cameras with dread. Shattered rovers. Some bodies. Nothing moved. One rover still smoked.

"Where's Sasha?" Yeli's voice cried. "Where's Sasha?"

"She was in the lock," someone said. "She was going out to greet them."

They went to work opening the inner lock door, Nadia at the front punching all the codes and then working with tools and finally a shape charge that someone handed to her. They moved back and the lock lock blew out like a crossbow bolt, and then they were there, crowbarring the heavy door back. Nadia rushed in and dropped to her knees by Sasha,

and they're getting in as many shots as they can.

"Murderous bastards!" Maya cried. "KGB fascists. . . ."

The town car stopped at the city offices. Nadia ran inside, to the room where she had stashed her stuff, at this point no more than her old blue backpack. She dug in it, still unaware of what she was looking for until her claw hand, still the strong one, reached into a bag and pulled it out. Arkady's transmitter. Of course. She ran back to the car and drove to the south gate. Sax and Frank were still talking, Sax sounding the same as always, but saying, "Every one of us whose location is known is either here, or else has been killed. I think they're after the first hundred in particular."

"Singling us out, you mean?" Frank said.

"I saw some Terran news that said we were the ringleaders. And twenty-one of us have died since the revolt began. Another forty missing."

The town car arrived at the south gate. Nadia turned off her intercom, got out of the car, went into the lock and put on boots, helmet, gloves. She pumped up and checked out, then slammed the open button and waited for the lock to empty and open. As it had on Sasha. They had lived a lifetime together in just the last month alone. Then it was out onto the surface, into the glare and push of a windy hazy day, feeling the first diamond bite of the cold. She kicked through drifts of fines and red puffs blew out ahead of her. The hollow woman, kicking blood. Out the other gate were the bodies of her friends and others, their dead faces purplish and bloated, as after construction accidents; Nadia had seen several of those now, seen death several times, and each had been a horror-and yet here they were deliberately creating as many of these horrible accidents as they could! That was war; killing people by every means possible. People who might have lived a thousand years. She thought of Arkady and of a thousand years, and hissed. They had quarreled so in recent years, mostly about politics. Your plans are all anachronism, Nadia had said. You don't understand the world. Ha! he had laughed, offended. This world I understand. With an expression as dark as any she had ever seen from him. And she remembered when he had given her the transmitter, how he

Phobos crossed the sky in four and a quarter hours, so she didn't have to wait long. It had risen as a half moon, but now it was gibbous, almost full, halfway to the zenith, moving at its steady clip across the coagulating sky. She could make out a faint point of light inside the gray disk: the two little domed craters, Semenov and Leveykin. She held the radio transmitter out and tapped in the ignition code, MANGALA. It was like using a TV remote.

And then a bright light flared on the leading edge of the little gray disk. The two faint lights went out. The bright light flared even brighter. Could she really perceive the deceleration? Probably not; but it was there.

Phobos was on its way down.

###

Back inside Cairo, she found that the news had already spread. The flare had been bright enough to catch peoples' eyes, and after that they had clumped together around the blank TV screens, by habit, and exchanged rumors and speculation, and somehow the basic fact had gotten around, or been worked out independently. Nadia strolled past group after group, and heard people saying "Phobos has been hit! Phobos has been hit!" And someone laughed, "They brought the Roche limit up to it!"

She thought she was lost in the medina, but almost directly she came to the city offices. Maya was outside: "Hey Nadia!" she cried, "Did you see Phobos?"

"Yes."

"Roger says when they were up there in year One, they built a system of explosives and rocketry into it! Did Arkady ever tell you about it?"

"Yes."

They went in to the offices, Maya thinking aloud: "If they manage to slow it down very much, it'll come down. I wonder if it'll be possible to calculate where. We're pretty damn close to the equator right here."

"It'll break up, surely, and come down in a lot of places."

"True. I wonder what Sax thinks."

Attitude jets," Sax said. They turned Phobos into a big rocket.

"They did it in the first year," Nadia said. She wasn't sure why she was speaking, she still seemed out of control, observing her actions from several seconds behind. "A lot of the Phobos crew was from rocketry and guidance. They processed the ice veins into liquid oxygen and deuterium, and stored it in lined columns buried in the chondrite. The engines and the control complex were buried centrally."

"So it is a big rocket." Sax was nodding as he typed. "Period of Phobos, 27, 547 seconds. So it's going. . . 2.146 kilometers per second, approximately, and to bring it down it needs to decelerate to. . . . to 1.561 kilometers per second. So, .585 kilometers per second slower. For a mass like Phobos. . . wow. That's a lot of fuel."

"What's it down to now?" Frank asked. He was black-faced, his jaw muscles pulsing under the skin like little biceps-furious, Nadia saw, at his inability to predict what would happen next.

"About one point seven. And those big thrusters still burning. It'll come down. But not in one piece. The descent will break it up, I'm sure."

"The Roche limit?"

"No, just stress from aerobraking, and with all these empty fuel chambers. . . ."

"What happened to the people on it?" Nadia heard herself ask.

"Someone came on and said it sounded like the whole population had bailed out. No one stuck around to try and stop the firing."

"Good," Nadia said, sitting down heavily on the couch.

"So when will it come down?" Frank demanded.

Sax blinked. "Impossible to say. Depends on when it breaks up, and how. But pretty soon, I'd guess. Within a day. And then there'll be a stretch somewhere along the equator, probably a big stretch of it, in big trouble. It's going to make a fairly large meteor shower."

"That will clear away some of the elevator cable," Simon said weakly. He was sitting beside Ann, watching her with concern. She stared at Simon's screen bleakly, showed no sign of hearing any of them. There never had been word of their son Peter. Was that better or worse than a

different speed.

"Well, we're kind of in the line of fire," Sax remarked, looking up at the rest of them. "The biggest chunks will hit the upper atmosphere soon, and then it'll happen pretty quickly."

"Can you determine where?"

"No, there's too many unknowns. Along the equator, that's all. We're probably far enough south to miss most of it, but there may be quite a scatter effect."

"People on the equator ought to head north or south," Maya said.

"They probably know that. Anyway the fall of the cable probably cleared the area pretty effectively already."

There was little to do but wait. None of them wanted to leave the city and head south, it seemed they were past that kind of effort, too hardened or too tired to worry about longshot risks. Frank paced the room, his swarthy face working with anger; finally he couldn't stand it, and got back on his screen to send off a sequence of short pungent messages. One came back in, and he snorted. "We've got a grace period, because the UN police are afraid to come down here until after the shit falls. After that they'll be on us like hawks. They're claiming that the command initiating the Phobos explosions originated here, and they're tired of a neutral city being used as a command center for the insurrection."

"So we've got until the fall is over," Sax said.

He clicked into the UNOMA network, and got a radar composite of the fragments. After that there was nothing to do. They sat; they stood and walked around; they looked at the screens; they ate cold pizza; they napped. Nadia did none of these things. She could only manage to sit, hunched over her stomach, which felt like an iron walnut in her. She waited.

Near midnight and the timeslip, something on the screens caught Sax's attention, and with some furious typing on Frank's channels he got through to the Olympus Mons observatory. It was just before dawn there, still dark, and one of the observatory cameras gave them its low space view southward, the black curve of the planet blocking the stars. And then there

mushroom clouds, their heads a bright pale pink, their dark gray stalks illuminated by reflection from above. Slowly the sunlight moved down the tumultuous stalks, until they were all burnished by the new morning sun. Then the lofty line of yellow and pink mushroom clouds drifted across a sky that was a delicate shade of indigo pastel: it looked like a Maxfield Parrish nightmare, too strange and beautiful a sight to believe. Nadia thought of the cable's last moment, that image of the incandescent double helix of diamonds. How was it that destruction could be so beautiful? Was there something in the scale of it? Was there some shadow in people, lusting for it? Or was it just a coincidental combination of the elements, the final proof that beauty had no moral dimension? She stared and stared at the image, focused all her will on it; but she could not make it make sense.

"That may be enough particulate matter to trigger another global dust storm," Sax observed. "Although the net heat addition to the system will surely be considerable."

"Shut up, Sax," Maya said.

Frank said, "It's about our turn to get hit, right?"

Sax nodded.

They left the city offices and went out into the park. Everyone stood facing northwest. It was silent, as if they were performing some religious ritual. It felt completely different than waiting for bombardment by the police. By now it was mid-morning, the sky a dull dusty pink.

Then over the horizon lanced a painfully bright comet; there was a collective indrawn gasp, punctuated by scattered cries. The brilliant white line curved down toward them, then shot over their heads in an instant, disappearing over the eastern horizon. There hadn't even been time to catch one's breath as it passed. A moment later the ground trembled slightly under their feet, and the silence was broken by exclamations. To the east a cloud shot up, redefining the height of the sky's pink dome; it must have plumed twenty thousand meters.

Then another brilliant white blaze crossed the sky overhead, trailing comet tails of fire. Then another, and another, and a whole blazing cluster of them, all crossing the sky and dropping over the eastern horizon, down

If they're ONOMA they won't do that," Sax said.

"You can't be sure," Maya said. "Everyone on Earth thinks we're the ringleaders."

"There aren't any ringleaders!" Frank said.

"But they want there to be ringleaders," Nadia said.

This stilled them.

Sax said mildly, "Someone may have decided things will be easier to control without us around."

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More news of impacts in the other hemisphere came in, and Sax settled down before the screens to follow it. Helplessly Ann stood over his right shoulder to observe it as well; these kinds of strikes had happened all the time back in the Noachian, and the chance to see one live was too much for her to pass up, even if it was the result of human agency.

While they watched, Maya continued to urge them to do something-to leave, to hide, whatever, just something. She swore at Sax and Ann both when they didn't respond. Frank left to see what was happening at the spaceport. Nadia accompanied him to the door of the city offices, afraid that Maya was right, but unwilling to listen anymore. She said good-bye to Frank and stood before the city building, looking at the sky. It was afternoon, and the prevailing westerlies were beginning to sweep down the slope of Tharsis, bringing with them dust from the impacts; it looked like smoke in the sky, as if there were a forest fire on the other side of Tharsis. The light inside Cairo dimmed as the dust clouds obscured the sun, and the tent's polarization created short rainbows and sundogs, as if the very fabric of the world were unravelling into kaleidoscopic parts. Huddled masses, under a burning sky. Nadia shivered. A thicker cloud covered the sun like an eclipse. She went indoors, out of its shadow, back into the offices. Sax was saying, "Very likely to begin another global."

"I hope it does," Maya said. She was pacing back and forth like a great cat in a cage. "It will help us escape."

"Escape where?" Sax asked.

good in some sort of melee. If everyone makes a break for it at once, they might be overwhelmed by numbers. Now look, if anything happens, let's all meet at the east gate, okay? You go ahead and go. Frank," he said to the screen, "you should get over there too when you can. I'm going to try some things with the physical plant robots that should keep those people out until dark at least."

It was now three PM, although it seemed like twilight, as the sky was thick with high, rapidly-moving dust clouds. The forces outside identified themselves as UNOMA police, and demanded to be let in. Frank and Cairo's mayor asked them for authorization from UN Geneva, and declared a ban on all arms in the city. The forces outside made no reply.

At 4:30 alarms went off all over the city. The tent had been breached, apparently catastrophically, because a sudden wind whipped west through the streets, and pressure sirens went off in every building. The electricity went off; and just that quick it went from a town to a broken shell, full of running figures in walkers and helmets, all of them rushing about, crowding toward the gates, knocked down by gusts of wind or by each other. Windows popped out everywhere, the air was full of clear plastic shrapnel. Nadia, Maya, Ann and Simon and Yeli left the city building, and fought their way through crowds toward the east gate. There was a great crush of people around it because the lock was open, and some people were squeezing through; a deadly situation for anyone who fell underfoot, and if the lock were blocked in any way, it could turn deadly for everyone. And yet it all happened in silence, except for helmet intercoms and some background impacts. The first hundred were tuned to their old band, and over the static and exterior noises Frank's voice came on. "I'm at the east gate now. Get out of the crush so I can find you." His voice was low, businesslike. "Hurry up, there's something happening outside the lock."

They worked their way out of the crowd, and saw Frank just inside the wall, waving a hand overhead. "Come on," the distant figure said in their ears. "Don't be such sheep, there's no reason to join the toothpaste when the tent's lost its integrity, we can cut through anywhere we want. Let's go straight for the planes."

said on their band. "Follow me."

They stared at this stranger. "Who are you?" Frank demanded.

"Follow me!" The stranger was a small man, and behind his face plate they could see a bright ferocious grin. Brown thin face. The man took off into an alley leading to the medina, and Maya was the first to follow. Helmeted people ran everywhere; those without helmets were sprawled on the ground, dead or dying. They could hear sirens through their helmets, very faint and attenuated, and there were soundlike vibrations underfoot, seismic booms of some kind; but other than that all the hectic activity occurred in silence, broken only by the sounds of their own breathing, and their voices in each other's ears, "Where to?" "Sax are you there?" "He went down that one," and so forth, a strangely intimate conversation, given the dusky chaos they ran through. Looking around Nadia almost kicked the body of a dead cat, lying in the streetgrass as if asleep.

The man they were following appeared to be humming a tune over their band, an absorbed little bum, bum, ba-dum-dum dum-Peter's theme from Peter and the Wolf, perhaps. He knew the streets of Cairo well, making turns in medina's tight warren without a moment's pause for thought, and leading them to the city wall in less than ten minutes.

At the wall they peered through the warped tenting; outside in the murk, anonymous suited figures were running off alone or in groups of two or three, in a kind of Brownian dispersion onto the south Noctis rim. "Where's Yeli?" Maya exclaimed suddenly.

No one knew.

Then Frank pointed. "Look!"

Down the road to the east, a number of rovers had appeared out of Noctis Labyrinthus. They were very fast cars of an unfamiliar shape, coming up out of the dusk without headlights.

"Who now?" Sax said. He turned to look at their guide for an answer; but the man was gone, disappeared back into the alleyways.

"Is this still the first hundred's frequency?" a new voice said.

"Yes!" Frank replied. "Who is this?"

Maya cried, "Isn't that Michel?"

in only a matter of minutes, though it seemed like an hour, explosions rocked the city. They saw flashes of light to the north, toward the spaceport. Michel came back on: "Shine a headlamp east for just a second."

Sax put his face to the tent wall and turned on his headlamp, briefly illuminating a cone of smoke-choked air. Visibility had dropped to a hundred meters or less, and seemed to still be diminishing. But Michel's voice said,

"Contact. Now, cut through the wall and step outside, we're almost there. We'll take off again when you're all in our rover locks, so be prepared. How many are you?"

"Six," Frank said after a pause.

"Wonderful. We have two cars, so it won't be too bad. Three of you in each, okay? Get ready, let's do this fast."

Sax and Ann cut at the tent fabric with little knives from their wristpad tool kits; they looked like kittens clawing at drapes, but quickly made holes big enough to crawl through, and they all clambered over the waist-high coping, and out onto the smoothed regolith of the wall skirt. Behind them explosions were blowing the physical plant into the sky, illuminating the wrecked city in flashes that cut through the haze like photographic strobes, freezing moments before they disappeared in the murk.

Suddenly the strange rovers they had seen appeared out of the dust and skidded to a halt before them. They yanked open the outer lock doors and piled in, Sax and Ann and Simon in one, Nadia with Maya and Frank in the other, and they were tumbled head over heels when the rover jerked into motion and accelerated away. "Ow!" Maya cried.

"All aboard?" Michel asked.

They called out their names.

"Good. I'm glad we have you!" Michel said. "It's getting pretty hard. Dmitri and Elena are dead, I just heard. Killed at Echus Overlook."

In the silence that ensued they could hear the tires, grinding over the gravel of the road.

"These rovers are really fast," Sax remarked.

Yes, we will try. But it's a long way, and conditions are not good. But I think we can do it. Oh, I am so glad we have found you! You don't know how horrible it has been to look and look, and find only bodies."

"We know," Maya said. "We found Arkady, and Sasha was just killed today, and Alex and Edvard and Samantha, and I guess Yeli too, just now. . . ."

"Yes. Well. We will try to make sure there aren't any more."

The rover's TV showed the interior of the following car, where Ann and Simon and Sax were having a similar reunion with Iwao. Their own car's driver exclaimed at something, and Michel turned to look over his shoulder, out the windshield. They were at the head of one of the many box canyons leading down into Noctis, a rounded canyon end that dropped rapidly away. The road that descended this headwall had followed a artificial ramp which had been built to support it; but now the ramp was gone, blasted away, and the road with it.

"We will have to walk," Michel said after a while. "We would have had to abandon these cars at the bottom anyway. It's only about five kilometers. Are your suits fully supplied?"

They refilled their tanks from the rover, and put their helmets back on. Then it was back out through the locks.

When they were all out, they stood staring at each other: the six refugees, Michel and Iwao, and two younger drivers, one man and one woman. The ten of them set off on foot, in darkness, using headlamps only during the tricky climb down the broken-off section of the road ramp. Once back on the road, they turned their headlamps off and strode down the steeply sloping gravel path, falling naturally into the long lope that was the most comfortable pace in this angle of descent. The night was starless, and the wind whistled downcanyon around them, sometimes in gusts so strong that it felt like they were being shoved in the back. It felt like another dust storm was indeed beginning; Sax muttered about equatorial versus global, but it was impossible to tell what it would be. "Let's hope it goes global," Michel said. "We can use the cover."

"I doubt it will," Sax said.

their luminous spots glowing on a great ocean floor. Or like miners in some fluid smoky tunnel. Some part of her began to enjoy the situation; it was a tiny stirring, a sensation mostly physical, but still, the first positive feeling she could remember since finding Arkady. Pleasure like the ghost itching of her lost finger, faint and slightly irritating.

It was still the middle of the night when they came to the bottom of the canyon, a broad U, very common to all the Noctis Labyrinth canyons. Michel approached a boulder, pushed its side with a finger; then lifted a hatch in the boulder's side. "Get in," he said.

There were two of these boulder cars, it turned out; big rovers, shelled by a thin layer of actual basalt. "What about their thermal signals?" Sax asked as he ducked into one.

"We direct all the heat into coils, and bury the coils. So there's no signal to speak of."

"Good idea."

The young man who had driven Michel's fast rover helped them into the new cars. "Let's get out of here," he said brusquely, almost shoving them through the outer lock doors. Light from the lock illuminated his face, framed by his helmet: Asian, perhaps twenty-five, he aided the refugees without meeting their eye, appearing disgruntled, disgusted, perhaps frightened. He said to them scornfully, "Next time you have a revolution you'd better try some other way."

Part Eight
Shikata Ga Nai

-+=*=-

When the occupants of the elevator car Bangkok Friend learned that Clarke had broken away and the cable was falling, they hurried to the foyer

slid open and there it was, a big rectangle of stark dead black space. It was daunting indeed to launch into it in an untethered spacesuit, it felt to the young man like suicide; but the ones at the front pulled out and the rest followed, like spores from an exploding seed pod.

The car and the elevator dwindled eastward and quickly disappeared. The cloud of spacesuits began to disperse. Many of them stabilized with their feet toward Mars, which lay below them like a dirty basketball; when steady, they ignited their main rockets and lofted upward. The group doing the calculations was still on the common band, talking it over as if it were a chess problem. They were near the areosynchronous orbit, but with a downward velocity of several hundred kilometers an hour; burning half their main packs' fuel would counteract most of that, and then they would be in an orbit much more stable than would be strictly necessary, given their air supplies. In other words they would die later of asphyxiation rather than sooner of reentry heat. But then that had been the whole point of bailing out in the first place. It was possible rescuers might appear in the grace period, one never knew. Clearly most people were willing to give it a try.

The young man pulled his rocket control rods out of his wrist consoles and put his fingers and thumbs on the buttons and got the world between his boots, and shot away from it for a while. Some of the others were trying to stay together, but he judged it impossible and a waste of fuel, and let them drift off above him until they were just more stars. He wasn't as frightened as he had been in the locker, but he was angry and sad: he didn't want to die. A spasm of grief for his lost future shook through him and he cried aloud, and wept. After a while the physical manifestations went away, even though he felt just as miserable as before. He stared dully at the stars. Occasional gusts of fright or despair shuddered through him, but they became less frequent as the minutes dragged on and then the hours. He tried to slow his metabolism but the effort had the opposite effect to that intended, and he decided to forget about it, although first he did call up his pulse rate on his wrist console: 108 beats a minute. Lucky he hadn't checked when they were suiting up and bailing out. He grimaced and tried identifying constellations. Time dragged by.

easier, and he figured he would do it when the air supply was about to run out. The thought put his pulse up to 130, and he tried to concentrate on the planet below. Home sweet home. He was still in almost areosynchronous orbit, it had been hours and Tharsis was still below, though a bit further west. He was over Marineris.

Hours passed and without intending to, he fell asleep again. When he woke there was a small silver spacecraft hanging before him like a UFO and he shouted with surprise, and started tumbling helplessly. He worked the rockets feverishly to bring himself under control, and when he managed it the craft was still there. There was a woman's face in a side window port, talking to him and pointing to her ear. He turned on the common band but she wasn't on it; he couldn't find her. He rocketed over toward the craft and scared the woman by nearly crashing into it. He managed to arrest and draw back a bit. The woman was gesturing; did he want in? He made a clumsy circle with gloved forefinger and thumb, nodding so vigorously that he started tumbling again. As he spun he saw a bay door open behind the window, on top of the craft. He got the suit stabilized and puffed toward the bay, wondering if it would be real when he got to it. He touched the open doorway and tears sprang to his eyes; he blinked and the teardrop spheres floated into his faceplate as he flattened against the bottom of the bay. He had an hour of air left.

When the bay was closed and pumped he unsealed his helmet and lifted it off. The air was thin and oxygen-rich, and cool. The bay lock door opened and he pushed through.

Women were laughing. There were two of them aboard, and they were in high spirits. "What were you going to do, land in that?" one asked.

"I was on the elevator," he said, voice cracking. "We had to jump off. Have you picked up anyone else?"

"You're the only one we've seen. Want a ride down?"

He could only gulp. They laughed at him.

"We're amazed to run into anyone out here, boy! How many gees are you comfortable with?"

"I don't know-three?"

land near the south polar cap.

Peter absorbed this in silence. Then they were bouncing wildly and the windows went white, then yellow, then a deep angry orange. Gravity forces jammed him back in his chair, his vision blurred and his neck hurt. "What a lightweight," one of the women said, and he didn't know if they meant him or the descender.

Then the gee forces let off and the window cleared. He looked out; they were dropping toward the planet in a steep dive, and were only a few thousand meters above the surface. He couldn't believe it. The women kept the craft in its radical stoop until it seemed they were going to spear the sand, and then at the last minute they flattened out and again he was shoved back into his chair. "Sweet," one of the women commented, and then boom, they were down and running over the layered terrain.

Gravity again. Peter clambered out of the descender after the two women, down a walktube and into a big rover, feeling stunned and ready to cry. There were two men in the rover, shouting greetings and hugging the women. "Who's this?" they cried. "Oh, we picked him up up there, he jumped off the elevator. He's a bit spaced still. Hey," she said to him with a smile, "we're down, it's okay."

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Some mistakes you can never make good.

Ann Clayborne sat in the back of Michel's rover, sprawled across three seats, feeling the wheels rise and fall over the rocks. Her mistake had been in coming to Mars in the first place, and then falling in love with it. Falling in love with a place everyone else wanted to destroy.

Outside the rover, the planet was being changed forever. Inside, the main room was lit by floor-level windows, which gave a snake's eye view out under the skirt of the rover's stone roof. Rough gravel road, scattered rockfall in the way. They were on the Noctis Highway, but a lot of rock had fallen on it. Michel wasn't bothering to drive around the smaller samples; they rolled along at about sixty kmph, and when they hit a big one they all

Are these cars supplied for a drive down the whole canyon?" Sax asked.

"No. We've got caches all over the place, though." Apparently the great canyons had been some of the principal transport corridors for the hidden colony. When the official Canyon Highway was built it had caused them problems, cutting off a lot of their routes.

From her corner Ann listened to Michel as attentively as the rest; she couldn't help being curious about the hidden colony. Their use of the canyons was ingenious. Rovers designed to stay down in them were disguised to look like one of the millions of boulders that lay in great talus piles sloping out from the cliffs. The roofs of the cars actually were boulders, hollowed out from below. Heavy insulation kept the rock roof of the car from heating up, so there was no IR signal, "especially since there's still any number of Sax's windmills scattered around down here, and they confuse the picture." The rover was insulated on its underside as well, so that it left no snail's track of heat to reveal its passing. The heat from the hydrazine motor was used to warm the living quarters, and any excess was directed into coils for later use; if they built up too much while moving, the coils were dropped into holes dug under the car, and buried with regolith mixed with liquid oxygen. By the time the ground over the coil warmed up, the rover was long gone. So they left no heat signal, and they never used the radio, and they moved only at night. During the day they sat in place among other boulders, "and even if they compared daily photos and saw we were new in the area, we would just be one in a thousand new boulders that had fallen off the cliffs that night. Mass wasting has really accelerated since you started the terraforming, because it's freezing and thawing every day. In the mornings and evenings there's something coming down every few minutes."

"So there's no way they can see us," Sax said, sounding surprised.

"That's right. No visual signal, no electronic signal, no heat signal."

"A stealth rover," Frank said over the intercom from the other car, and laughed his harsh bray.

...we pipe it down into the deep regolith, and melt ice for our water. Or else we pipe it out to vents disguised as your little windmill heaters. Among other methods."

"Those were a bad idea," Sax said. From the next car Frank laughed at him. Only thirty years late with that realization, Ann would have said if she were speaking.

"But no, an excellent idea!" Michel said. "They must have added millions of kilocalories to the atmosphere by now."

"About an hour from any of the moholes," Sax said primly.

He and Michel began to discuss the terraforming projects. Ann let their voices drift into glossolalia; it was amazingly easy, conversations these days were always right on the edge of meaninglessness for her, she had to exert herself to understand, rather than the reverse. She relaxed away from them, and felt Mars bounce and jumble under her. They stopped briefly to bury a heating coil. The road got smoother when they started again. They were deep in the labyrinth now, and in a normal rover she would have been looking through the skylights at tight steep canyon walls. Rift valleys, enlarged by slumping; there had been ice in this ground, once upon a time, now all migrated down to the Compton aquifer at the bottom of Noctis, presumably.

Ann thought of Peter and shuddered helplessly. One couldn't assume things, but the fear gnawed at her. Simon watched her surreptitiously, the worry plain on his face, and suddenly she hated his doggy loyalty, his doggy love. She didn't want anyone to care for her like that, it was an unbearable burden, an imposition.

At dawn they stopped. The two boulder rovers parked at the edge of a patch of similar boulders. All day they sat in one of the cars together, lingering over small rehydrated or microwaved meals, trying to find TV or radio transmissions. There weren't any to speak of, only the occasional burst in a number of languages and encryptions. An ether junkyard, adding up to an incoherent mash. Harsh blasts of static seemed to indicate electromagnetic pulses. But the rover's electronics were hardened, Michel said. He sat in a chair as if meditating. A new calm for Michel Duval, Ann

road, he said, the area was basically impassable. "And if they figure we went this way out of Cairo, they may bomb the route." They had traveled nearly five hundred kilometers the previous night, almost the whole length of Noctis; another good night and they would be down into Ius, and beyond their complete reliance on a single route.

It was a dark day, the air thick with brown fines, the winds high. Another dust storm, no doubt about it. Temperatures were plummeting. Sax sniffed at a radio voice which claimed the dust storm was going global. Michel, however, was pleased. It meant they could travel during the day as well, cutting their travel time in half. "We've got five thousand kilometers to go, and most of it off-road. It will be wonderful to be able to travel by day, I haven't done that since the Great Storm."

So he and Kasei began driving round the clock, taking shifts of three hours at the wheel. Another day and they were down the Compton Break, and into tight-walled Ius Chasm, and Michel relaxed.

Ius was the narrowest of all the canyons in the Marineris system, only twenty-five kilometers wide when it left the Compton Break, dividing Sinai Planum from Tithania Catena. The canyon was a deep slash between these two plateaus, its side cliffs a full three kilometers high; a long, narrow, giant of a rift. But they only saw the walls in glimpses, through bubbles of open air in the blowing dust. They continued to follow a level but rockstrewn route, making good progress through all of a long dim day. It was quiet in the car, the radio turned down to decrease the irritation of the static. The cameras' views, higher than the windows, were of dust whipping past them so that it seemed they hardly moved. Often it looked as if they were slewing sideways. It was hard driving, and Simon and Sax spelled Michel and Kasei, following their directions. Ann was still not talking, and they did not ask her to drive. Sax drove with one eye on his AI screen, which was giving him atmospheric readouts. She could tell from across the car that the AI was indicating that the impact of Phobos was thickening the atmosphere a great deal, projected to as much a fifty millibar addition, an extraordinary amount. And the newly smashed craters were still outgassing. Sax noted this change with his owlish satisfaction,

their third night out, the two cars ran down the lower end of Ius, and came to a long lemniscate fin dividing the canyon. They followed the official trans-Marineris Highway down the south fork. In the last hour before dawn, they caught sight of some clouds overhead, and the dawn was much lighter than those of the previous days. It was enough to send them to cover, and they stopped in a fall of boulders stacked against the foot of the canyon's south wall, and gathered in the lead car to wait out the day.

Here they had a view out over the broad expanse of Melas Chasma, the biggest canyon of them all. Ius's rock was rough and blackish in comparison to the smooth red floor of Melas; it seemed to Ann possible that the two canyons were made of rock from ancient tectonic plates, once moving past each other, now juxtaposed forever.

They sat through a long day, talked out, tense, exhausted, their hair oily and uncombed, their faces grimy with the ubiquitous red fines of a dust storm. Sometimes there were clouds, sometimes haze, sometimes sudden pockets of clarity.

In mid-afternoon, without any warning at all, the rover rocked on its shock absorbers. Startled to attention, they jerked up to look at the TVs. The rover's rear camera was pointed back up Ius, and suddenly Sax tapped the screen displaying its view. "Frost," he said. "I wonder. . . ."

The camera showed the frost steam thickening, moving down canyon toward them. The highway was up on a bench above the main floor of Ius's south fork; and this was lucky, because with a roar that shook the rover, that main floor disappeared, overwhelmed by a low wall of black water and dirty white mush. It was a juggernaut of ice chunks, tumbling rocks, foam, mud and water, a slurry throwing itself down the middle of the canyon. The roar was like thunder, even inside the car; it was too loud to talk, and the car trembled under them.

Below their bench, the canyon floor proper was perhaps fifteen kilometers across. The flood filled this whole expanse in a matter of minutes, and promptly began to rise against a long talus slope that ran out from the cliff down canyon from them. The surface of the flood settled as it

Now there was a river running down Vales Marineris, a broad, steaming, ice-choked deluge. Ann had seen videotape of the outbreaks in the north, but she hadn't been able to get to one, to see it in person. Here in the flesh, she found it almost impossible to grasp. The landscape itself was now speaking a kind of glossolalia. The inchoate roar smashed at the air, and quivered their stomachs like some bass tearing of the world's fabric; and it was visual chaos as well, a meaningless jumble that she couldn't seem to focus on, to distinguish near from far, or vertical from horizontal, or moving from still, or light from dark. She was losing the ability to read meaning from her senses. Only with great difficulty could she understand her companions in the car. She wasn't sure if it was her hearing or not. She couldn't stand to look at Sax, but then Sax she at least understood. He was trying to hide it from her, but it was clear he was excited by what was happening. That calm dead exterior had always been a mask over a passionate nature, and she had always known it. Now he was high-colored as if he had a fever, and he never met her eye; he knew that she knew what he felt. She despised his shirking inability to confront her, even if it did arise from some kind of consideration for her. And the way he stayed always busy at his screen. She had never seen him get down and actually look out the low floor windows of the rover, to see the flood with his own eyes. The cameras have a better view, he would say mildly when Michel urged him to have a look. And after only a half hour of watching the first arrival of the flood on the TVs, he had gone to his AI screen to work out what it might mean to his project. Water rushing down Ius, freezing, breaking up and rushing down again; certainly into Melas; whether there would be enough water to make it into Coprates, and then down into Capri and Eos, and then down into the Aureum chaos. . . it seemed unlikely on the face of it, but the Compton Aquifer had been big, one of the biggest ever found. Marineris very likely owed its existence to outbreaks from earlier incarnations of the same aquifer, and the Tharsis bulge had never stopped outgassing. . . . She found she was lying on the floor of the rover, watching the flood, trying to comprehend it. She tried to calculate its flow in her head, just as a way to focus better on what she

stretched right to it. The flood was perhaps ten meters deep, judging by the giant boulders that rolled downstream like Big Man's bowling balls, smashing ice to shards and leaving steaming black polynyas in their wake. The water in the open patches seemed to be moving at perhaps thirty kilometers an hour. So (punching figures into her wristpad) perhaps four and a half million cubic meters per hour. That was about a hundred Amazons out there, but running irregularly, freezing and bursting in a perpetual series of ice dams building and failing, whole steaming lakes leaping downhill over whatever channel or slope they found themselves on, stripping the land down to bedrock and then tearing the bedrock away. . . Lying on the floor of the rover, Ann could feel that assault in her cheekbones, vibrating the ground in a rapid pounding. Such tremors hadn't been felt on Mars in millions of years, which explained something else that she had seen but not been able to comprehend; the northern wall of Ius was moving. The rock of the cliffs was flaking off and falling into the canyon, which shook the ground, and triggered more collapses, and giant waves that washed out into the flood, water pouring back upstream over the ice, the rock bursting apart in explosions of hydration, the frost steam pouring so thickly into the dust-choked air that she could see the northern wall only in snatches.

And without a doubt the southern wall would be collapsing in a similar way, although their view of this wall, which loomed over their road to the right, was foreshortened and cut off. But it had to be falling. And if it flaked off above them, then they were dead for sure. It was quite possible—very possible. Judging by her glimpses of the north wall, the chances might be as high as fifty percent. But then it was probably worse over there; the northern wall appeared to be undercut by the flood, while the south wall was removed from it by the bench they were driving over. So the southern cliffs should be a bit more stable—

But then something drew her eye forward, downstream from them. Up there the south wall was indeed collapsing, falling in great sheets of rock. The base of the cliff exploded in a cloud of dust that bloomed over the talus, and the upper sections of the cliff slid down into this new cloud of

bathub, draining while he poured new bucketfuls in. The speed of the lake's ascent caused Ann to raise her estimate of the flow rate. She felt paralyzed, disconnected, in some curious sense serene; it was a matter of indifference to her whether or not the dam broke before the flood reached them. And in the overwhelming roar she felt no need to communicate with the others about this; it was impossible. She found that in a way she was cheering the flood on. It would serve them all right.

But then the landslide dam disappeared under the discolored slurry, and it all rolled off downstream in a stately collapse, the short-lived lake dropping as she watched, ice blocks on its surface clattering together, shrieking and booming as they collided and jumbled around and shot high into the air, all fantastically loud, every audible pitch roaring at once. It had to be well over a hundred decibels. She had her fingers in her ears, but couldn't remember for how long. The car was bouncing up and down. She could see more landslides from the cliffs farther downstream, no doubt undercut by the sudden surge of the flood; and the tremors they caused were triggering further collapses, until it looked like the whole canyon would fill. It seemed impossible in all the noise and vibration that their little cars would survive. The travelers clutched their chair arms or lay there on the floor like Ann, isolated by the roar, their veins pumping with an awful mix of ice and adrenalin; even Ann, who did not care, found her breath short, her muscles tensed against the kinetic assault.

When they could hear each other's shouts again, they asked Ann what had happened. Dully she stared out the window, ignoring them. Apparently they were going to survive, for the moment at least. The flood surface was now the most shattered chaotic terrain she had ever seen, the ice pulverized to a plain of wicked shards. The high point of the lake had climbed their bench until it had been only a hundred meters downslope from them; the re-exposed wet ground down there had turned from rusty black to dirty white in less than twenty seconds. Freezing time on Mars.

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Sax had stayed in his seat through all that, absorbed by flickering on his screen. A lot of water would evaporate, or rather freeze and sublime, he

cracks in the rock, subliming and snowing and melting and running again. A glaciated or muddy world, most of the time. But a waterscape nevertheless.

And every single feature of the primal Mars would melt away. Red Mars was gone.

Ann lay there on the floor by the window. Her tears poured out of her to join the flood; over the dam of her nose, downstream until her right cheek and ear and the whole side of her face was wet.

###

"This will complicate the process of getting downcanyon," Michel said with a little Gallic smile, and from the next car Frank laughed. In fact it looked as if it would be impossible for them to proceed even five kilometers. Directly before them the canyon highway was buried under the great landslide, completely gone. The new spill of rock was shattered and unstable, sapped from below by the flood, pounded from above by subsequent mass wasting of the new slope.

For a long time the others debated even making a try. They had to speak loudly to be heard over the jet engine roar of the flood, which still swept past with no sign of a let-up. Nadia considered the slope suicidal, but Michel and Kasei were pretty sure they could find a way, and after a long day's reconnaissance on foot they managed to convince Nadia to agree to try it, and the rest were willing if Nadia was. And so the day after that, protected from surveillance by the general dust storm and the flood's steam, they divided into the two cars and drove slowly out onto the slide.

It was a rough mass of gravel and sand, liberally sprinkled with boulders. There was, however, a zone corresponding to the bench below it, which was relatively level. This zone was the only thing that made passage possible; it was a matter of finding an unobstructed way over a surface like poorly mixed cement, around boulders and past the occasional gaping hole. Michel drove the lead car boldly, with a stubbornness verging on the reckless. "Desperate measures," he declared cheerily. "Can you imagine getting on this kind of ground in the normal course of things? It would be insane."

And so onward they went. But Michel's sanguinity was sharply reduced when the second car collapsed into a hole that had been concealed by a kind of trapdoor arrangement of boulders. With some work they were able to open the front lock and pull out Kasei, Maya, Frank and Nadia. But there was no chance whatsoever of freeing the second car, they didn't have the lift or the leverage. So they transferred all the supplies out of it, until the lead car was absolutely stuffed. And they moved on, eight of them and their supplies, all now in a single car.

###

Beyond the landslide, however, it got easier. They followed the canyon highway down into Melas Chasma, and found that the road had been built close to the south wall, and as Melas was so broad canyon, the flood had had room to spread out, and had bowed off some ways to the north. It still sounded like air miners were running at full capacity right outside their lock, but the road was well above and to the south of the flood, which was releasing veils of frost steam that filled the chasm, and obscured any views farther north.

So they proceeded without difficulty for a couple of nights, until they came to the Geneva Spur, which stuck out from the gigantic south wall nearly to the edge of the flood. Here the official road had swung out into what was now the course of the deluge, and they had to find a higher route. The rocky traverses they made around the lower slopes of the Spur were really difficult for the rover. Once they were nearly hung up on an obtruding rounded rock, and Maya shouted at Michel, accusing him of recklessness. She took over the driving while Michel and Kasei and Nadia went out in walkers. They jacked them off the rock, and then walked ahead to reconnoiter the route of the traverse.

Frank and Simon helped Maya look for obstructions as she drove. Sax continued to spend all his time at his screen. From time to time Frank would turn on the TV and run a search for signals, trying to piece together news from the occasional staticky voices the radio found in the jamming. On the very spine of the Geneva Spur, as they were crossing the absurdly thin concrete thread of the Transcanyon Highway, they were far enough

I don't think it helps to make analogies between the physical and social worlds," Sax said primly.

"Shut up, Sax. Go back to your virtual reality."

Frank was still angry, still filled with bitter bile; it sublimed from him like the frost steam off the flood. He snapped questions at Michel about the hidden colony, his curiosity bursting out two or three times a day. Ann was happy to think she would not be Hiroko when Frank first met her. Michel answered these accusing questions calmly, ignoring the sarcasm and the furious gleam in Frank's eye. Maya's attempts to cool Frank only increased his rage, but she kept at it; Ann was impressed at how persistent she was, how insensitive to Frank's brusque rejections. It was a side of Maya that Ann had never seen before; Maya was usually the most volatile person around. But not now, not when the pressure was really on.

Eventually they rounded the Geneva Spur, and got back on the bench under the southern escarpment. The way east was often interrupted by landslides, but they always had room to veer left around them. Progress was good.

But then they came to the eastern end of Melas. Here the greatest chasm of them all narrowed, and dropped several hundred meters down into the two parallel canyons of Coprates, which were separated by a long narrow plateau. South Coprates dead-ended in a cliffy headwall some two hundred and fifty kilometers away; North Coprates connected with the lower canyons farther east, and therefore was the one they wanted to take. North Coprates was the longest single segment of the Marineris system; Michel called it La Manche, and it, like the English Channel, narrowed as it progressed eastward, until at around 60° longitude it narrowed and reared into a gigantic gorge: sheer cliffs four kilometers high, facing each other across a gap only twenty-five kilometers across. Michel called this gorge the Dover Gate; apparently the cliff walls in this gap were whitish, or had been.

So they made their way down North Coprates, and the cliffs closed in on them more every day. The flood filled almost the whole width of the canyon floor, and its flow was so rapid that the ice on its surface had broken into

completely covered by the flood, their bench below the southern wall of the gorge was no more than two kilometers wide, and diminishing every minute. It seemed possible the whole bench might be torn away in a flash. Maya cried that it was too dangerous to go on, and argued for a retreat. If they circled around and drove up to the dead end of south Coprates, she shouted, and managed to climb to the plateau above, then they could drive past the pits of Coprates Catena, and proceed onward to Aureum.

Michel shouted his insistence that they press forward, and get through the Gate on the bench. "If we hurry we can make it! We must try!" And when Maya continued to protest, he added forcefully: "The head of south Coprates is steep! The car would never get up it, it's a cliff like these! And we don't have the supplies to add so many extra days to our trip! We can't go back!"

The insane roar of the flood was his only answer. They sat in the car, in their separate thoughts, separated by the roar as if by many kilometers of space. Ann found herself wishing the bench would slide from under them, or a piece of the south wall fall onto them, and put an end to their indecision, and to the awful, maddening noise.

They drove on. Frank and Maya and Simon and Nadia stood behind Michel and Kasei, watching them drive; Sax sat at his screen, stretching like a cat, staring myopically at the little picture of the deluge. The surface calmed for a moment, and froze over, and the explosive noise reduced to a violent low rumble. "It's like the Grand Canyon on a kind of super-Himalayan scale," Sax said, apparently to himself, although only Ann would be able to hear him. "The Kala Gandaki Gorge is like three kilometers deep, isn't it? And Dhalagiri and Annapurna only forty or fifty kilometers apart, I think. Fill that with a flood like. . . ." He failed to recall any comparable flood. "I wonder what all that water was doing so high on the Tharsis bulge."

Cracks like gunshots announced another surge. The white surface of the flood blew apart and tumbled downstream. White noise suddenly enveloped them, battering everything they said or thought, as if the universe were vibrating. A bass tuning fork. . . .

extreme. But with less volcanism, and fewer big meteor strikes, nothing set it off. It might have been full for a billion years."

"Do you think Phobos broke it open?"

"Maybe. More likely a reactor meltdown."

"Did you know Compton was this big?" Sax asked.

"Yes."

"I never heard of it."

"No."

Ann stared at him. Had he heard her say that?

He had. Concealing data: he was shocked, she could tell. He couldn't imagine any reason good enough to conceal data. Perhaps this was the root of their inability to understand each other. Value systems based on entirely different assumptions. Completely different kinds of science.

He cleared his throat. "Did you know it was liquid?"

"I thought so. But now we know."

Sax twitched, and called up on his screen the image from the left side camera. Black fizzing water, gray debris, shattered ice, boulders like great tumbling dice; standing waves freezing in place, collapsing and sweeping away in clouds of frost steam. . . the noise had risen back to its crackling jet howl.

"I wouldn't have done it this way!" Sax exclaimed.

Ann stared at him. He steadfastly regarded the TV.

"I know," she said. And then she was tired of talk again, tired of its uselessness. It had never been any more than it was now: whispers against the great roar of the world, half-heard and less understood.

##

They drove as quickly as they could through the Dover Gate, following the Calais Ramp as Michel called their bench. Progress was nerve-rackingly slow, it was a bitter struggle to get the rover over the rockfall covering this narrow terrace; boulders were scattered everywhere, and the flood ate away at the land to their left, narrowing the bench at a perceptible rate. Landslides from the cliff walls fell ahead and behind them, and more than once individual rocks crashed into the car's roof, making them all

opened up again, giving them some leeway. The flood veered a few kilometers to the north.

At dusk they stopped the car. They had been driving for some forty hours straight. They stood up and stretched, shuffled around, and then sat back down and ate a microwaved meal together. Maya, Simon, Michel and Kasei were in good spirits, cheerful to have gotten through the Gate; Sax was the same as always; Nadia and Frank a bit less grim than usual. The surface of the flood was frozen over for the moment, and it was possible to speak without hurting one's throat, and still be heard. And so they ate, concentrating on the small portions of food, talking in a desultory manner.

Late in this quiet meal Ann looked around curiously at her companions, suddenly awed by the spectacle of human adaptability. Here they were eating their dinner, talking over the low boom from the north, in a perfect illusion of dining room conviviality; it might have been anywhere anytime, and their tired faces bright with some collective success, or merely with the pleasure of eating together-while just outside their chamber the broken world roared, and rockfall could annihilate them at any instant. And it came to her that the pleasure and stability of dining rooms had always occurred against such a backdrop, against the catastrophic background of universal chaos; such moments of calm were things as fragile and transitory as soap bubbles, destined to burst almost as soon as they blew into existence. Groups of friends, rooms, streets, years, none of them would last. The illusion of stability was created by a concerted effort to ignore the chaos they were imbedded in. And so they ate, and talked, and enjoyed each other's company; this was the way it had been in the caves, on the savannah, in the tenements and the trenches and the cities huddling under bombardment.

And so, in this moment of the storm, Ann Clayborne exerted herself. She stood up, she went to the table. She picked up Sax's plate, Sax who had first drawn her out; and then Nadia's and Simon's. She carried the plates over to their little magnesium sink. And as she cleaned the dishes, she felt her stiff throat move; she croaked out her part of the conversation,

depression. Just what they had needed!

Ashamed, she got up and quietly finished cleaning up the main room and the drivers' area. And later that day she took her turn driving the rover, doing a six hour shift, and ending up exhausted. But she got them well east of the Dover Gate.

Their troubles, however, were not over. Coprates had opened up a bit, yes, and the south wall had for the most part held; but in this area there was a long ridge, now an island, running down the middle of the canyon, dividing it into north and south channels; and unfortunately the southern channel was lower than the northern one, so that the bulk of the flood was running down it, and crowding them tight against the southern wall. Happily the bench terrace gave them some five kilometers between the deluge and the wall proper; but with the flood so close on their left, and the steep cliffs on their right, they never lost the sense of danger. And they had to raise their voices to talk at least half the time; and the crackling roar of the surges seemed to invade their heads, making it harder than ever to concentrate, or to pay attention, or indeed to think at all.

One day Maya crashed her fist against the table and cried, "Couldn't we wait for the island ridge to get torn away?"

After an awkward pause Kasei said, "It's a hundred kilometers long."

"Well, shit-couldn't we just wait until this flood stops? I mean, how long can it go on like this?"

"A few months," Ann said.

"Can't we wait that long?"

"We're running low on food," Michel explained.

"We have to keep going," Frank snapped at Maya. "Don't be stupid." She glared at him and turned away, clearly furious. The rover suddenly seemed much too small, as if a bunch of tigers and lions had been thrown together in a dog's kennel. Simon and Kasei, oppressed by the tension, suited up and went out to scout what lay ahead.

###

Beyond what they called Island Ridge, Coprates opened up like a funnel, with deep troughs under the diverging canyon walls. The northern

food and gases. The cupboards were nearly bare.

And they were tired, very tired. It had been twenty-three days since they had escaped from Cairo, now 2500 kilometers upcanyon; and all that time they had been sleeping in shifts, and driving almost constantly, and living in the aural assault of the flood, the roar of a world falling down in pieces on their heads. They were too old for this, as Maya said more than once, and nerves were frayed; they were fudging things, making little mistakes, falling into little microbursts of sleep.

The bench that was their road between cliff and flood became an immense boulder field, the boulders mostly ejecta from nearby craters, or detritus from really extensive mass wasting. It looked to Ann like the big fluted and scalloped embayments in the southern cliff were sappings that would initiate tributary subsidence canyons; but she didn't have the time to look very closely. Often it seemed that they were going to have their way blocked entirely by boulders, that after all these days and kilometers, after negotiating most of Marineris in the midst of a most violent cataclysm, they were going to be halted just short of the tremendous washes leading out of its lower end.

But then they found a way; and were stopped; and found a way; and were stopped; and found a way; and so on, for day after day after day. They went to half rations. Ann drove more than anyone else, as she seemed to be fresher than the rest, and was the best driver there anyway with the possible exception of Michel. And she felt she owed it to them after her shameful collapse during the greater part of their journey. She wanted to do everything she could, and when she wasn't driving, she went out to scout the way. It was still numbingly loud outside, and the ground trembled underfoot. It was impossible to get used to that, though she did her best to ignore it. Sunlight burned through the mist and haze in broad lurid splashes, and in the sunset hour icebows and sundogs appeared in the sky, along with rings of light around the dulled sun; often the whole sky seemed afire, a Turner vision of the apocalypse.

Soon enough Ann too wore down, and the work became exhausting. She understood now why her companions had been so tired, why they had

perfect fractal plane," Sax remarked, "of about 2.7 dimensions." No one bothered to answer him.

Kasei, wandering on foot, found a passage right down on the bank of the flood. For the moment the whole visible expanse of the deluge was frozen, as it had been for the last couple of days. It stretched out to the horizon, a jumbled surface like Earth's Arctic Sea, only much dirtier, a great mix of black and red and white lumps. The ice just offshore was flat, however, and in many places clear. They could look down into it, and see that it appeared to be only a couple meters deep, and frozen right down to the bottom. So they drove down to this icy shore and ran along it, and when rocks in the way forced her to, Ann put the left wheels of the rover out onto the ice, and then the entire car; and it held like any other surface. Nadia and Maya snorted at the others' nervousness about this course: "We spent all winter driving on the rivers in Siberia," Nadia said. "They were the best roads we had."

So for an entire day Ann drove along the ragged edge of the flood, and out onto its surface, and they made a hundred and sixty kilometers, their best day in two weeks.

Near sunset it began to snow. The west wind poured out of Coprates, driving big gritty clumps of snow past them as if they weren't moving at all. They came to a fresh slide zone, which spilled right out onto the ice of the flood. Big boulders scattered over the ice gave it the air of an abandoned neighborhood, old houses half demolished. The light was dusky gray. They needed a foot guide through this maze, and in an exhausted conference Frank volunteered, and went out to do the job. At this point he was the only one of them with any strength left, more even than the younger Kasei; still burning with the force of his anger, a breeder fuel that would never give out.

Slowly he walked ahead of the car, testing routes and returning, either shaking his head or waving Ann on. Around them thin veils of frost steam lofted into the falling snow, the two mixing and gusting off together on the powerful evening wind, off into the murk. Watching the dark spectacle of one hard gust, Ann misread the configuration of the ice's meeting with the

than it onto a rock, she said.

"Damn you! Why don't you watch where you're going! Here, stop the wheels, stop them! I'm gonna put the grip cloths under the front wheels and lever you forward, and then you get it off this rock and up the slope as quick as you can, understand? There's another surge coming!"

"Frank!" Maya cried. "Get inside!"

"Soon as I get the fucking pads down! Be ready to go!"

The pads were strips of spiked metal mesh, set under wheels that had dug holes into sand, and then pegged out ahead so that the wheels had something to grip. An ancient desert method, and Frank ran around the front of the rover cursing under his breath and snapping directions to Ann, who obeyed with her teeth clenched and her stomach knotted.

"Okay go!" Frank shouted. "Go!"

"Get in first!" Ann cried.

"There's no time, go it's almost here! I'll hang on the side, go, damn it, go!"

So Ann gently accelerated the front wheels, and felt them catch on the grips and scrape the car forward over the rock, until the rear wheels touched down again and they scraped off and were free. But the roar of the flood suddenly doubled and redoubled behind them, and then there were chunks of ice bounding past the car, bursting along with a hideous cracking, and then the ice was overwhelmed by a dark wave of steaming bubbling slurry, a surge that washed up over the windows of the car; Ann floored the accelerator and held the wheel with a death grip as it bounced in her hands. Mixed with the crashing of the surge wave she heard Frank's voice shouting "Go, idiot, go!" and then they were hit hard and the car slewed off to the left, out of control. Ann hung onto the wheel as it threw her from side to side. Her left ear throbbed with pain, she had hit something with it. She held on to the wheel and kept her foot jamming the accelerator to the floor. The wheels caught on something and the rover ground through water, they were rolling through water, it poured from right to left and there was a dull banging against the side of the car. "Go!" She kept the accelerator floored and turned uphill, bouncing wildly in the driver's

the twilight the headlights cut into meters into the snowfall, and in the two intersecting yellow cones, and the dark gray world outside them, they saw only the ragged surface of the flood, a pouring sea of flotsam and jetsam without the slightest hint of any regular shape; in fact it looked like a world in which such shapes were impossible. No one could survive in such madness. Frank was gone, either knocked off the car in its jouncing, or swept off it in its brief and nearly fatal encounter with the wave.

His final curses still seemed to bubble out of the static on the intercom, out of the roar of the flood. His final imprecation rang in Ann's ears like the judgement they were: Go, idiot, go! It had been her fault, all her fault-

Maya was weeping, choking on sobs, doubling over her stomach as if cramping, "No!" she cried. "Frank, Frank! We have to look for him!" Then she was crying too hard to speak. Sax went over and dug into the medicine chest, and walked over to her and crouched by her side. "Here, Maya, do you want a sedative?" And she uncoiled and dashed the pills from his hand, "No!" she screamed, "they're my feelings, they're my men, do you think I'm a coward, do you think I would want to be a zombie like you!"

She collapsed into helpless, involuntary, racking sobs. Sax stood over her, blinking, face twisted with a stricken look; Ann found herself cut to the quick by that look, "Please," she said. "Please, please." She got up from the driver's seat, went back to them and held Sax briefly by the arm. She crouched to help Nadia and Simon pick Maya up off the floor, and get her to her bed. Already Maya was quieter, withdrawing from them, her eyes red and her nose running, off in her own grief, one hand clenched in a death grip over Nadia's wrist. Nadia looked down at her with a doctor's detached expression, withdrawn in her own way, murmuring in Russian.

"Maya, I'm sorry," Ann said. Her throat was cramped, it hurt to talk. "It was my fault. I'm sorry."

Maya shook her head. "It was accident."

Ann couldn't bring herself to say aloud that she had stopped paying attention. The words stuck in her throat, and another spasm of sobs racked Maya, and the chance to speak was gone.

said was in the broken terrain just south of Aureum Chaos. "It's not our main colony anymore," he explained to the others. "It's where we went first, after we left Underhill. But Hiroko wanted to leave for the south, and after a few years we did. She said she didn't like this first shelter because Aureum is a sink, and she thought it might become a lake someday. I thought that was crazy, but I see now that she was right. It looks like Aureum may even be the final drainage for this flood, I don't know. But the refuge is at a higher elevation than we are now, so it will be okay. It may be empty, but it will be stocked with supplies. And any port in a storm, yes?"

No one had the spirit to reply.

On the second day of hard driving the flood disappeared over the horizon to the north. The roar of it went away soon after. The ground, covered with a meter of dirty snow, no longer trembled underfoot; the world seemed dead, strangely silent and still, shrouded in white. When it wasn't snowing the sky was still hazy, but it seemed clear enough for them to be spotted from above, so they stopped traveling by day. They moved at night without headlights, across a snowscape that glowed faintly under the stars.

Ann drove through these nights. She never told anyone about her moment of inattention at the wheel. And she never even came close to doing it again; she stayed focused with a desperate concentration, biting the inside of her mouth till it bled, oblivious to everything but what lay in the cones of light before her. She usually drove all night, forgetting to wake the next watch's driver, or deciding not to. Frank Chalmers was dead, and it was her fault; desperately she wished she could reach back and change things, but it was hopeless. Some mistakes you can never make good. The white landscape was marred by an infinity of stones, each capped with its own cake of snow, and the salt-and-pepper landscape was such a patchwork that it was hard at night for the eye to make sense of it; sometimes they seemed to be plowing underground, or floating five meters over it. A white world. Some nights she understood she was driving a hearse, across the body of the deceased. The widows Nadia and Maya in back. And now she knew that Peter was dead too.

likelihood that they would not survive, perhaps simple hunger, there was no way of telling. The young were odd. But he reminded her of Peter, and so she didn't look at him either.

The snow made each night glow and pulse. All of it would melt eventually, carve new streambeds and carry her Mars away. Mars was gone. Michel sat beside her through the second shifts of the night, looking for signs of the way. "Are we lost?" Maya asked him once, just before dawn.

"No, not at all. It's just. . . we're leaving tracks in the snow. I don't know how long they'll last, or how visible they are, but if. . . well, just in case they do last, I want to leave the car, and walk the last part of the way. So I want to be precisely sure of where we are before we do that. We've got some standing stones and dolmens erected that will tell us for sure, but I have to find one of those first. They'll show on the horizon, you know. Boulders a bit taller than usual, or columns."

"It will be easier to see those by day," Simon said.

"True. We'll have a look around tomorrow, and that should do it—we'll be in an area of them. They were designed to help people lost like us. We'll be okay."

Except that their friends were dead. Her only child was dead. And their world was gone for good. Lying down by the windows at dawn, Ann tried to imagine life in the hidden shelter. Underground for years and years. She couldn't do it. Go, idiot, go! Damn you!

At dawn Kasei hooted with hoarse triumph: out there on the northern horizon was a trio of standing stones. A lintel bridging two pillars, as if a single fragment of Stonehenge had flown here. Home was that way, said Kasei.

But first they would wait through the day. Michel was becoming extremely cautious about being seen from satellites, and wanted to continue on by night. They settled down to get some sleep.

Ann couldn't sleep, she found herself energized by a new resolve. When the rest were out cold, Michel snoring happily, all of them asleep for the first time in about fifty hours, she tugged into her walker and tiptoed into

tailing straight down in tiny flakes, probably accreted around sand grains. At the end of the drumlin was a fat low boulder. She sat in its lee. She turned off her walker's heating unit, and covered the blinking alarm light on her wristpad with a clump of snow.

It got colder fast. The sky was an opaque gray now, tinged with faint pink. Snow fell out of the pinkness onto her faceplate.

She had just stopped shivering, and was getting comfortably chill, when a boot kicked her hard in the helmet, and she was dragged up to her knees with her head ringing. A suited figure banged its faceplate into hers, hard. Then hands with a vise's grip took her by the shoulders and flung her down to the ground. "Hey," she cried weakly. She was yanked by her shoulders to her feet, and her left arm was pulled back and held up high behind her back. Her assailant worked at her wristpad, and then shoved her painfully forward, her arm still held high. She couldn't fall without breaking her arm. She could feel the diamond pattern of her suit's heating elements begin to flare against her skin, burning their pattern into her. Every few steps she was slapped hard in the helmet.

The figure marched her right back to their own rover, which astonished her. She was shoved into the lock, and the figure tumbled in after her, and closed and pumped the chamber, and tore off her helmet, and then his, and to her utter amazement it was her Simon, purple-faced and shouting at her, striking her still, his face soaking wet with tears-this her Simon, the quiet one, now yelling at her "Why? Why? Damn you, you always do this, it's always just you you you, off in your own world, you are so selfish!" Voice rising to a final painful shriek, her Simon who never said anything, never raised his voice, never spoke more than a word, now striking her and shrieking in her face, literally spitting, gasping with fury; and suddenly it made her mad. Why not before, why not when she had needed someone with some life in him? Why had it taken this to rouse him? She punched him right in the chest, hard, and he fell back. "Leave me alone," she shouted. "Leave me alone!" And then the anguish shuddered through her, the chilled shiver of martian death: "Why didn't you leave me alone?"

across the chaos, swirling the spindrift over the shattered land. Boulders as big as city blocks lay jumbled against each other, and the landscape was broken in a million little cliffs, holes, mesas, ridges, peaks-also many peculiar spikes, and towers, and balancing rocks, held in place by kami alone. All the steep or vertical stone in this chaotic terrain was still black, while flatter areas were now white with snow, so that the landscape was a densely variegated black and white, all swirling in and out of visibility as billows and veils of snow gusts by.

Then the snow stopped. The wind died. The black verticals and white horizontals gave the world a definition it didn't usually have. In the overcast there were no shadows, and the landscape glowed as if light were pouring up through the snow onto the bottoms of the dusky low clouds. Everything was sharp-edged and distinct, as if captured in glass.

Over the horizon appeared moving figures. One by one they appeared, until there were seven of them, in a ragged line. They moved slowly, their shoulders slumped, their helmets bent forward. They moved as if they had no destination. The two in front looked up from time to time, but they never paused, or pointed the way.

The eastern clouds gleamed like mother of pearl, the only sign on that dull day that the sun had risen. The figures walked up a long ridge that emerged from the blasted landscape. From the upper slopes of the ridge one could see a long way in every direction.

It took a long time for the figures to climb the ridge. Finally they approached a peak, a bouldery knob where the ridge began to descend again. At the summit of the knob was a curious thing: a big flat-bottomed boulder standing high in the air, balanced on six slender stone pillars.

The seven figures approached this megalith. They stopped and regarded it for a time, under the dark bruised clouds. Then they stepped between the pillars, and under the boulder. It stood well over them, a massive roof. The circular floor beneath it was flat, made of cut polished stone.

One of the figures walked to a far column, and touched it with a finger. The others looked out at the motionless snowy chaos. A trapdoor slid open

south. The refuge under the doliem was just that, a sequence of small caves in the ridge, stocked with emergency rations and gas supplies, but otherwise empty. After a few days to rest and catch up on sleep and food, Maya began to complain. It was no way to live, she said, it was no more than a kind of death-in-life; where were all the others? Where was Hiroko? Michel and Kasei explained again that the hidden colony was in the south, that they had moved down there long ago. All right, Maya said, then we will go south too. There were other boulder cars in the refuge's garage, they could caravan down by night, she said, and out of the canyons they would be safe. The refuge was no longer self-sustaining in any case, its supplies were large but limited, so they would have to go sooner or later. Best to go while the dust storm would still provide some cover for the trip. Best to go.

So she drove the tired little group to action. They loaded two cars, and took off again, south across the great rumpled plains of Margarifiter Sinus. Free from the restrictions of Marineris, they made hundreds of kilometers per night, and slept through the days, and in a nearly speechless journey of several days they passed between Argyre and Hellas, through the endless craterland of the southern highlands. It began to seem that they had never done anything but drive onward in their little cars, that the journey would last forever.

But then one night they drove onto the layered terrain of the polar region, and near dawn the horizon ahead gleamed, and then became a dim white bar, which thickened and thickened as they proceeded, until it was a white cliff standing before them. The southern polar cap, evidently. Michel and Kasei took over the two drivers' seats, and conferred over the intercom in low voices. They drove on until they reached the white cliff, and they continued to drive straight at it, until they were on frozen crusted sand that was under the bulk of the ice. The cliff was an enormous overhang, like a wave stopped in the moment it was about to crash onto a beach. There was a tunnel cut into the ice at the bottom of the cliff, and a figure in a walker appeared, and directed the two rovers into it.

The tunnel led them straight into the ice for what must have been a kilometer at least. The tunnel was wide enough for two or three rovers, and

it on a cloudy day, and it seemed to come from the white dome itself, which gleamed.

The ground under the dome was gently rolling reddish sand, grassy in the hollows, with frequent stands of tall bamboo and gnarled pine. There were some small hillocks to the right, and clustered in these hills was a little village, one and two-story houses painted white and blue, interspersed with large trees which had bamboo rooms and staircases set in their thick branches.

Michel and Kasei were walking toward this village, and the woman who had guided their cars into the tunnel lock was running ahead, shouting "They're here, they're here!" Under the other side of the dome there was a lake of faintly steaming open water, its surface a white sheen lined by waves that broke on the near shore. On the far shore stood the blue bulk of a Rickover, its reflection a smear of blue across the white water. Gusts of cold damp wind nipped at their ears.

Michel came back and retrieved his old friends, who were standing like statues. "Come on, it's cold out," he said with a smile. "There's a water ice layer stuck to the dome, so we have to keep the air below freezing all the time."

People were spilling out of the village, calling out. Down by the little lake a young man appeared sprinting toward them, gazelling over the dunes in great leaps. Even after all their years on Mars such a flying run still looked dreamlike to the first hundred, and it took a while before Simon clutched Ann by the arm and cried "That's Peter! That's Peter!"

"Oh my God," she said.

And then they were in a crush of people, many of them young folk and children, strangers, but with familiar faces everywhere making their way to the fore, Hiroko and Iwao, Raul, Rya, Gene, Peter crashing in to hug Ann and Simon, and there were Vlad and Ursula and Marina and several others from the Acheron group, all clustered around them, reaching to touch them, to embrace them.

"What is this place?" Maya cried.

"This is home," Hiroko said. "This is where we start again."

