

THE SULTAN OF THE CLOUDS

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Geoffrey A. Landis recently returned to Ohio from a trip to Boston, where he was filmed showing Michio Kaku how a balloon filled with ordinary air floats in a carbon-dioxide atmosphere for Kaku's television special *Sci-Fi Science: Physics of the Impossible*. In the rest of his life, Geoff works on NASA missions to Mars, Venus, and the solar corona. On rare occasions, he finds time to write science fiction stories that, as in the following novella, sometimes take place in these exotic locales.

When Leah Hamakawa and I arrived at Riemann orbital, there was a surprise waiting for Leah: a message. Not an electronic message on a link-pad, but an actual physical envelope, with *Doctor Leah Hamakawa* lettered on the outside in flowing handwriting.

Leah slid the note from the envelope. The message was etched on a stiff sheet of some hard crystal that gleamed a brilliant translucent crimson. She looked at it, flexed it, ran a fingernail over it, and then held it to the light, turning it slightly. The edges caught the light and scattered it across the room in droplets of fire. "Diamond," she said. "Chromium impurities give it the red color; probably nitrogen for the blue. Charming." She handed it to me. "Careful of the edges, Tinkerman; I don't doubt it might cut."

I ran a finger carefully over one edge, but found that Leah's warning was unnecessary; some sort of passivation treatment had been done to blunt the edge to keep it from cutting. The letters were limned in blue, so sharply chiseled on the sheet that they seemed to rise from the card. The title read, "Invitation from Carlos Fernando Delacroix Ortega de la Jolla y Nordwald-Gruenbaum." In smaller letters, it continued, "We find your researches on the ecology of Mars to be of some interest. We would like to invite you to visit our residences at Hypatia at your convenience and talk."

I didn't know the name Carlos Fernando, but the family Nordwald-Gruenbaum needed no introduction. The invitation had come from someone within the intimate family of the satrap of Venus.

Transportation, the letter continued, would be provided.

The satrap of Venus. One of the twenty old men, the lords and owners of the solar system. A man so rich that human standards of wealth no longer had any meaning. What could he want with Leah?

I tried to remember what I knew about the sultan of the clouds, satrap of the fabled floating cities. It seemed very far away from everything I knew. The society, I

thought I remembered, was said to be decadent and perverse, but I knew little more. The inhabitants of Venus kept to themselves.

Riemann station was ugly and functional, the interior made of a dark anodized aluminum with a pebbled surface finish. There was a viewport in the lounge, and Leah had walked over to look out. She stood with her back to me, framed in darkness. Even in her rumpled ship's suit, she was beautiful, and I wondered if I would ever find the clue to understanding her.

As the orbital station rotated, the blue bubble of Earth slowly rose in front of her, a fragile and intricate sculpture of snow and cobalt, outlining her in a sapphire light. "There's nothing for me down there," she said.

I stood in silence, not sure if she even remembered I was there.

In a voice barely louder than the silence, she said, "I have no past."

The silence was uncomfortable. I knew I should say something, but I was not sure what. "I've never been to Venus," I said at last.

"I don't know anybody who has." Leah turned. "I suppose the letter doesn't specifically say that I should come alone." Her tone was matter of fact, neither discouraging nor inviting.

It was hardly enthusiastic, but it was better than no. I wondered if she actually liked me, or just tolerated my presence. I decided it might be best not to ask. No use pressing my luck.

The transportation provided turned out to be the *Suleiman*, a fusion yacht.

Suleiman was more than merely first-class, it was excessively extravagant. It was larger than many ore transports, huge enough that any ordinary yacht could have easily fit within the most capacious of its recreation spheres. Each of its private cabins—and it had seven—was larger than an ordinary habitat module. Big ships commonly were slow ships, but *Suleiman* was an exception, equipped with an impressive amount of delta-V, and the transfer orbit to Venus was scheduled for a transit time well under that of any commercial transport ship.

We were the only passengers.

Despite its size, the ship had a crew of just three: captain, and first and second pilot. The captain, with the shaven head and saffron robe of a Buddhist novice, greeted us on entry, and politely but firmly informed us that the crew was not answerable to orders of the passengers. We were to keep to the passenger section and we would be delivered to Venus. Crew accommodations were separate from the passenger accommodations and we should expect not to see or hear from the crew during the voyage.

"Fine," was the only comment Leah had.

When the ship had received us and boosted into a fast Venus transfer orbit, Leah found the smallest of the private cabins and locked herself in it.

Leah Hamakawa had been with the Pleiades Institute for twenty years. She had joined young, when she was still a teenager—long before I'd ever met her—and I knew little of her life before then, other than that she had been an orphan. The institute was the only family that she had.

It seemed to me sometimes that there were two Leahs. One Leah was shy and childlike, begging to be loved. The other Leah was cool and professional, who could hardly bear being touched, who hated—or perhaps disdained—people.

Sometimes I wondered if she had been terribly hurt as a child. She never talked about growing up, never mentioned her parents. I had asked her, once, and the only thing she said was that that was all behind her, long ago and far away.

I never knew my position with her. Sometimes I almost thought that she must love

me, but couldn't bring herself to say anything. Other times she was so casually thoughtless that I believed she never thought of me as more than a technical assistant, indistinguishable from any other tech. Sometimes I wondered why she even bothered to allow me to hang around.

I damned myself silently for being too cowardly to ask.

While Leah had locked herself away, I explored the ship. Each cabin was spherical, with a single double-glassed octagonal viewport on the outer cabin wall. The cabins had every luxury imaginable, even hygiene facilities set in smaller adjoining spheres, with booths that sprayed actual water through nozzles onto the occupant's body.

Ten hours after boost, Leah had still not come out. I found another cabin and went to sleep.

In two days I was bored. I had taken apart everything that could be taken apart, examined how it worked, and put it back together. Everything was in perfect condition; there was nothing for me to fix.

But, although I had not brought much with me, I'd brought a portable office. I called up a librarian agent and asked for history.

In the beginning of the human expansion outward, transport into space had been ruinously expensive, and only governments and obscenely rich corporations could afford to do business in space. When the governments dropped out, a handful of rich men bought their assets. Most of them sold out again, or went bankrupt. A few didn't. Some stayed on due to sheer stubbornness, some with the fervor of an ideological belief in human expansion, and some out of a cold-hearted calculation that there would be uncountable wealth in space, if only it could be tapped. When the technology was finally ready, the twenty families owned it all.

Slowly, the frontier opened, and then the exodus began. First by the thousands: Baha'i, fleeing religious persecution; deposed dictators and their sycophants, looking to escape with looted treasuries; drug lords and their retinues, looking to take their profits beyond the reach of governments or rivals. Then, the exodus began by the millions, all colors of humanity scattering from the Earth to start a new life in space. Splinter groups from the Church of John the Avenger left the unforgiving mother church seeking their prophesied destiny; dissidents from the People's Republic of Malawi, seeking freedom; vegetarian communes from Alaska, seeking a new frontier; Mayans, seeking to reestablish a Maya homeland; libertarians, seeking their free-market paradise; communists, seeking a place outside of history to mold the new communist man. Some of them died quickly, some slowly, but always there were more, a never-ending flood of dissidents, malcontents, and rebels, people willing to sign away anything for the promise of a new start. A few of them survived. A few of them thrived. A few of them grew.

And every one of them had mortgaged their very balls to the twenty families for passage.

Not one habitat in a hundred managed to buy its way out of debt—but the heirs of the twenty became richer than nations, richer than empires.

The legendary war between the Nordwald industrial empire and the Gruenbaum family over solar-system resources had ended when Patricia Gruenbaum sold out her controlling interest in the family business. Udo Nordwald, tyrant and patriarch of the Nordwald industrial empire—now Nordwald-Gruenbaum—had no such plans to discard or even dilute his hard-battled wealth. He continued his consolidation of power with a merger-by-marriage of his only son, a boy not even out of his teens, with the shrewd and calculating heiress of la Jolla. His closest competitors gone, Udo retreated from the outer solar system, leaving the long expansion outward to others.

He established corporate headquarters, a living quarters for workers, and his own personal dwelling in a place that was both central to the inner system, and also a spot that nobody had ever before thought possible to colonize. He made his reputation by colonizing what was casually called the solar system's Hell planet.

Venus.

The planet below grew from a point of light into a gibbous white pearl, too bright to look at. The arriving interplanetary yacht shed its hyperbolic excess in a low pass through Venus' atmosphere, rebounded leisurely into high elliptical orbit, and then circularized into a two-hour parking orbit.

Suleiman had an extravagant viewport, a single transparent pane four meters in diameter, and I floated in front of it, watching the transport barque glide up to meet us. I had thought *Suleiman* a large ship; the barque made it look like a miniature. A flattened cone with a rounded nose and absurdly tiny rocket engines at the base, it was shaped in the form of a typical planetary-descent lifting body, but one that must have been over a kilometer long, and at least as wide. It glided up to the *Suleiman* and docked with her like a pumpkin mating with a pea.

The size, I knew, was deceiving. The barque was no more than a thin skin over a hollow shell made of vacuum-foamed titanium surrounding a vast empty chamber. It was designed not to land, but to float in the atmosphere, and to float it required a huge volume and almost no weight. No ships ever landed on the surface of Venus; the epithet "hell" was well chosen. The transfer barque, then, was more like a space-going dirigible than a spaceship, a vehicle as much at home floating in the clouds as floating in orbit.

Even knowing that the vast bulk of the barque was little more substantial than vacuum, though, I found the effect intimidating.

It didn't seem to make any impression on Leah. She had come out from her silent solitude when we approached Venus, but she barely glanced out the viewport in passing. It was often hard for me to guess what would attract her attention. Sometimes I had seen her spend an hour staring at a rock, apparently fascinated by a chunk of ordinary asteroidal chondrite, turning it over and examining it carefully from every possible angle. Other things, like a spaceship nearly as big as a city, she ignored as if they had no more importance than dirt.

Bulky cargos were carried in compartments in the hollow interior of the barque, but since there were just two of us descending to Venus, we were invited to sit up in the pilot's compartment, a transparent blister almost invisible at the front.

The pilot was another yellow-robed Buddhist. Was this a common sect for Venus pilots, I wondered? But this pilot was as talkative as *Suleiman's* pilot had been reclusive. As the barque undocked, a tether line stretched out between it and the station. The station lowered the barque toward the planet. While we were being lowered down the tether, the pilot pointed out every possible sight—tiny communications satellites crawling across the sky like turbocharged ants; the pinkish flashes of lightning on the night hemisphere of the planet far below; the golden spider's-web of a microwave power relay. At thirty kilometers, still talking, the pilot severed the tether, allowing the barque to drop free. The Earth and Moon, twin stars of blue and white, rose over the pearl of the horizon. Factory complexes were distantly visible in orbit, easy to spot by their flashing navigation beacons and the transport barques docked to them, so far away that even the immense barques were shrunken to insignificance.

We were starting to brush atmosphere now, and a feeling of weight returned and increased. Suddenly we were pulling half a gravity of over-g. Without ever stopping talking, the pilot-monk deftly rolled the barque inverted, and Venus was now over

our heads, a featureless white ceiling to the universe. “Nice view there, is it not?” the pilot said. “You get a great feel for the planet in this attitude. Not doing it for the view, though, nice as it is; I’m just getting that old hypersonic lift working for us, holding us down. These barques are a bit fragile; can’t take them in too fast, have to play the atmosphere like a big bass fiddle. Wouldn’t want us to bounce off the atmosphere, now, would you?” He didn’t pause for answers to his questions, and I wondered if he would have continued his travelogue even if we had not been there.

The g-level increased to about a standard, then steadied.

The huge beast swept inverted through the atmosphere, trailing an ionized cloud behind it. The pilot slowed toward subsonic, and then rolled the barque over again, skipping upward slightly into the exosphere to cool the glowing skin, then letting it dip back downward. The air thickened around us as we descended into the thin, featureless haze. And then we broke through the bottom of the haze into the clear air below it, and abruptly we were soaring above the endless sea of clouds.

Clouds.

A hundred and fifty million square kilometers of clouds, a billion cubic kilometers of clouds. In the ocean of clouds the floating cities of Venus are not limited, like terrestrial cities, to two dimensions only, but can float up and down at the whim of the city masters, higher into the bright cold sunlight, downward to the edges of the hot murky depths.

Clouds. The barque sailed over cloud-cathedrals and over cloud-mountains, edges recomplicated with cauliflower fractals. We sailed past lairs filled with cloud-monsters a kilometer tall, with arched necks of cloud stretching forward, threatening and blustering with cloud-teeth, cloud-muscled bodies with clawed feet of flickering lightning.

The barque was floating now, drifting downward at subsonic speed, trailing its own cloud-contrail, which twisted behind us like a scrawl of illegible handwriting. Even the pilot, if not actually fallen silent, had at least slowed down his chatter, letting us soak in the glory of it. “Quite something, isn’t it?” he said. “The kingdom of the clouds. Drives some people batty with the immensity of it, or so they say—cloud-happy, they call it here. Never get tired of it, myself. No view like the view from a barque to see the clouds.” And to prove it, he banked the barque over into a slow turn, circling a cloud pillar that rose from deep down in the haze to tower thousands of meters above our heads. “Quite a sight.”

“Quite a sight,” I repeated.

The pilot-monk rolled the barque back, and then pointed, forward and slightly to the right. “There. See it?”

I didn’t know what to see. “What?”

“There.”

I saw it now, a tiny point glistening in the distance. “What is it?”

“Hypatia. The jewel of the clouds.”

As we coasted closer, the city grew. It was an odd sight. The city was a dome, or rather, a dozen glistening domes melted haphazardly together, each one faceted with a million panels of glass. The domes were huge, the smallest nearly a kilometer across, and as the barque glided across the sky the facets caught the sunlight and sparkled with reflected light. Below the domes, a slender pencil of rough black stretched down toward the cloudbase like taffy, delicate as spun glass, terminating in an absurdly tiny bulb of rock that seemed far too small to counterbalance the domes.

“Beautiful, you think, yes? Like the wonderful jellyfishes of your blue planet’s oceans. Can you believe that half a million people live there?”

The pilot brought us around the city in a grand sweep, showing off, not even bothering to talk. Inside the transparent domes, chains of lakes glittered in green ribbons between boulevards and delicate pavilions. At last he slowed to a stop, and then slowly leaked atmosphere into the vacuum vessel that provided the buoyancy. The barque settled down gradually, wallowing from side to side now that the stability given by its forward momentum was gone. Now it floated slightly lower than the counterweight. The counterweight no longer looked small, but loomed above us, a rock the size of Gibraltar. Tiny fliers affixed tow ropes to hardpoints on the surface of the barque, and slowly we were winched into a hard-dock.

"Welcome to Venus," said the monk.

The surface of Venus is a place of crushing pressure and hellish temperature. Rise above it, though, and the pressure eases, the temperature cools. Fifty kilometers above the surface, at the base of the clouds, the temperature is tropical, and the pressure the same as Earth normal. Twenty kilometers above that, the air is thin and polar cold.

Drifting between these two levels are the ten thousand floating cities of Venus.

A balloon filled with oxygen and nitrogen will float in the heavy air of Venus, and balloons were exactly what the fabled domed cities were. Geodetic structures with struts of sintered graphite and skin of transparent polycarbonate synthesized from the atmosphere of Venus itself, each kilometer-diameter dome easily lifted a hundred thousand tons of city.

Even the clouds cooperated. The thin haze of the upper cloud deck served to filter the sunlight so that the intensity of the Sun here was little more than the Earth's solar constant.

Hypatia was not the largest of the floating cities, but it was certainly the richest, a city of helical buildings and golden domes, with huge open areas and elaborate gardens. Inside the dome of Hypatia, the architects played every possible trick to make us forget that we were encapsulated in an enclosed volume.

But we didn't see this part, the gardens and waterfalls, not at first. Leaving the barque, we entered a disembarking lounge below the city. For all that it featured plush chaise lounges, floors covered with genetically engineered pink grass, and priceless sculptures of iron and jade, it was functional: a place to wait.

It was large enough to hold a thousand people, but there was only one person in the lounge, a boy who was barely old enough to have entered his teens, wearing a bathrobe and elaborately pleated yellow silk pants. He was slightly pudgy, with an agreeable, but undistinguished, round face.

After the expense of our transport, I was surprised at finding only one person sent to await our arrival.

The kid looked at Leah. "Doctor Hamakawa. I'm pleased to meet you." Then he turned to me. "Who the hell are you?" he said.

"Who are you?" I said. "Where's our reception?"

The boy was chewing on something. He seemed about to spit it out, and then thought better of it. He looked over at Leah. "This guy is with you, Dr. Hamakawa? What's he do?"

"This is David Tinkerman," Leah said. "Technician. And, when need be, pilot. Yes, he's with me."

"Tell him he might wish to learn some manners," the boy said.

"And who are you?" I shot back. "I don't think you answered the question."

The not-quite-teenager looked at me with disdain, as if he wasn't sure if he would even bother to talk to me. Then he said, in a slow voice as if talking to an idiot, "I am Carlos Fernando Delacroix Ortega de la Jolla y Nordwald-Gruenbaum. I own this station and everything on it."

He had an annoying high voice, on the edge of changing, but not yet there.

Leah, however, didn't seem to notice his voice. "Ah," she said. "You are the scion of Nordwald-Gruenbaum. The ruler of Hypatia."

The kid shook his head and frowned. "No," he said. "Not the scion, not exactly. I am Nordwald-Gruenbaum." The smile made him look like a child again; it made him look likable. When he bowed, he was utterly charming. "I," he said, "am the sultan of the clouds."

Carlos Fernando, as it turned out, had numerous servants indeed. Once we had been greeted, he made a gesture and an honor guard of twenty women in silken doublets came forward to escort us up.

Before we entered the elevator, the guards circled around. At a word from Carlos Fernando, a package was brought forward. Carlos took it, and, as the guards watched, handed it to Leah. "A gift," he said, "to welcome you to my city."

The box was simple and unadorned. Leah opened it. Inside the package was a large folio. She took it out. The book was bound in cracked, dark red leather, with no lettering. She flipped to the front. "Giordano Bruno," she read. "*On the Infinite Universe and Worlds*." She smiled, and riffled through the pages. "A facsimile of the first English edition?"

"I thought perhaps you might enjoy it."

"Charming." She placed it back in the box, and tucked it under her arm. "Thank you," she said.

The elevator rose so smoothly it was difficult to believe it traversed two kilometers in a little under three minutes. The doors opened to brilliant noon sunlight. We were in the bubble city.

The city was a fantasy of foam and air. Although it was enclosed in a dome, the bubble was so large that the walls nearly vanished into the air, and it seemed unencumbered. With the guards beside us, we walked through the city. Everywhere there were parks, some just a tiny patch of green surrounding a tree, some forests perched on the wide tops of elongated stalks, with elegantly sculpted waterfalls cascading down to be caught in wide fountain basins. White pathways led upward through the air, suspended by cables from impossibly narrow beams, and all around us were sounds of rustling water and birdsong.

At the end of the welcoming tour, I realized I had been imperceptibly but effectively separated from Leah. "Hey," I said. "What happened to Dr. Hamakawa?"

The honor guard of women still surrounded me, but Leah and the kid who was the heir of Nordwald-Gruenbaum had vanished.

"We're sorry," one of the women answered, one slightly taller, perhaps, than the others. "I believe that she has been taken to her suite to rest for a bit, since in a few hours she is to be greeted at the level of society."

"I should be with her."

The woman looked at me calmly. "We had no instructions to bring you. I don't believe you were invited."

"Excuse me," I said. "I'd better find them."

The woman stood back and gestured to the city. Walkways meandered in all directions, a three-dimensional maze. "By all means, if you like. We were instructed that you were to have free run of the city."

I nodded. Clearly, plans had been made with no room for me. "How will I get in touch?" I asked. "What if I want to talk to Leah—to Dr. Hamakawa?"

"They'll be able to find you. Don't worry." After a pause, she said, "Shall we show you to your place of domicile?"

The building to which I was shown was one of a cluster that seemed suspended in the air by crisscrossed cables. It was larger than many houses. I was used to living in

the cubbyholes of habitat modules, and the spaciousness of the accommodations startled me.

"Good evening, Mr. Tinkerman." The person greeting me was a tall Chinese man perhaps fifty years of age. The woman next to him, I surmised, was his wife. She was quite a bit younger, in her early twenties. She was slightly overweight by the standards I was used to, but I had noticed that was common here. Behind her hid two children, their faces peeking out and then darting back again to safety. The man introduced himself as Truman Singh, and his wife as Epiphany. "The rest of the family will meet you in a few hours, Mr. Tinkerman," he said, smiling. "They are mostly working."

"We both work for His Excellency," Epiphany added. "Carlos Fernando has asked our braid to house you. Don't hesitate to ask for anything you need. The cost will go against the Nordwald-Gruenbaum credit, which is," she smiled, "quite unlimited here. As you might imagine."

"Do you do this often?" I asked. "House guests?"

Epiphany looked up at her husband. "Not too often," she said, "not for His Excellency, anyway. It's not uncommon in the cities, though; there's a lot of visiting back and forth as one city or another drifts nearby, and everyone will put up visitors from time to time."

"You don't have hotels?"

She shook her head. "We don't get many visitors from outplanet."

"You said 'His Excellency,'" I said. "That's Carlos Fernando? Tell me about him."

"Of course. What would you like to know?"

"Does he really—" I gestured at the city—"own all of this? The whole planet?"

"Yes, certainly, the city, yes. And also, no."

"How is that?"

"He will own the city, yes—this one, and five thousand others—but the planet? Maybe, maybe not. The Nordwald-Gruenbaum family does claim to own the planet, but in truth that claim means little. The claim may apply to the surface of the planet, but nobody owns the sky. The cities, though, yes. But, of course, he doesn't actually control them all personally."

"Well, of course not. I mean, hey, he's just a kid—he must have trustees or proxies or something, right?"

"Indeed. Until he reaches his majority."

"And then?"

Truman Singh shrugged. "It is the Nordwald-Gruenbaum tradition—written into the first Nordwald's will. When he reaches his majority, it is personal property."

There were, as I discovered, eleven thousand, seven hundred and eight cities floating in the atmosphere of Venus. "Probably a few more," Truman Singh told me. "Nobody keeps track, exactly. There are myths of cities that float low down, never rising above the lower cloud decks, forever hidden. You can't live that deep—it's too hot—but the stories say that the renegade cities have a technology that allows them to reject heat." He shrugged. "Who knows?" In any case, of the known cities, the estate to which Carlos Fernando was heir owned or held shares or partial ownership of more than half.

"The Nordwald-Gruenbaum entity has been a good owner," Truman said. "I should say, they know that their employees could leave, move to another city if they had to, but they don't."

"And there's no friction?"

"Oh, the independent cities, they all think that the Nordwald-Gruenbaums have too much power!" He laughed. "But there's not much they can do about it, eh?"

"They could fight."

Truman Singh reached out and tapped me lightly on the center of my forehead with his middle finger. “That would not be wise.” He paused, and then said more slowly, “We are an interconnected ecology here, the independents and the sultanate. We rely on each other. The independents could declare war, yes, but in the end nobody would win.”

“Yes,” I said. “Yes, I see that. Of course, the floating cities are so fragile—a single break in the gas envelope—”

“We are perhaps not as fragile as you think,” Truman Singh replied. “I should say, you are used to the built worlds, but they are vacuum habitats, where a single blow-out would be catastrophic. Here, you know, there is no pressure difference between the atmosphere outside and the lifesphere inside; if there is a break, the gas equilibrates through the gap only very slowly. Even if we had a thousand broken panels, it would take weeks for the city to sink to the irrecoverable depths. And, of course, we do have safeguards, many safeguards.” He paused, and then said, “But if there were a war . . . we are safe against ordinary hazards, you can have no fear of that . . . but against metastable bombs . . . well, that would not be good. No, I should say that would not be good at all.”

The next day I set out to find where Leah had been taken, but although everyone I met was unfailingly polite, I had little success in reaching her. At least, I was beginning to learn my way around.

The first thing I noticed about the city was the light. I was used to living in orbital habitats, where soft, indirect light was provided by panels of white-light diodes. In Hypatia City, brilliant Venus sunlight suffused throughout the interior. The next thing I noticed were the birds.

Hypatia was filled with birds. Birds were common in orbital habitats, since parrots and cockatiels adapt well to the freefall environment of space, but the volume of Hypatia was crowded with bright tropical birds, parrots and cockatoos and lorikeets, cardinals and chickadees and quetzals, more birds than I had names for, more birds than I had ever seen, a raucous orchestra of color and sound.

The floating city had twelve main chambers, separated from one another by thin, transparent membranes with a multiplicity of passages, each chamber well lit and cheerful, each with a slightly different style.

The quarters I had been assigned were in Sector Carbon, where individual living habitats were strung on cables like strings of iridescent pearls above a broad fenway of forest and grass. Within Sector Carbon, cable cars swung like pendulums on long strands, taking a traveler from platform to platform across the sector in giddy arcs. Carlos Fernando’s chambers were in the highest, centermost bubble—upcity, as it was called—a bubble dappled with colored light and shadow, where the architecture was fluted minarets and oriental domes. But I wasn’t, as it seemed, allowed into this elite sphere. I didn’t even learn where Leah had been given quarters.

I found a balcony on a tower that looked out through the transparent canopy over the clouds. The cloudscape was just as magnificent as it had been the previous day; towering and slowly changing. The light was a rich golden color, and the Sun, masked by a skein of feathery clouds like a tracery of lace, was surrounded by a bronze halo. From the angle of the Sun it was early afternoon, but there would be no sunset that day; the great winds circling the planet would not blow the city into the night side of Venus for another day.

Of the eleven thousand other cities, I could detect no trace—looking outward, there was no indication that we were not alone in the vast cloudscape that stretched to infinity. But then, I thought, if the cities were scattered randomly, there would be little chance one would be nearby at any given time. Venus was a small planet, as

planets go, but large enough to swallow ten thousand cities—or even a hundred times that—without any visible crowding of the skies.

I wished I knew what Leah thought of it.

I missed Leah. For all that she sometimes didn't seem to even notice I was there . . . our sojourn on Mars, brief as it had been . . . we had shared the same cubby. Perhaps that meant nothing to her. But it had been the very center of my life.

I thought of her body, lithe and golden-skinned. Where was she? What was she doing?

The park was a platform overgrown with cymbidian orchids, braced in the air by the great cables that transected the dome from the stanchion trusswork. This seemed a common architecture here, where even the ground beneath was suspended from the buoyancy of the air dome. I bounced my weight back and forth, testing the resonant frequency, and felt the platform move infinitesimally under me. Children here must be taught from an early age not to do that; a deliberate effort could build up destructive oscillation. I stopped bouncing, and let the motion damp.

When I returned near the middle of the day, neither Truman nor Epiphany were there, and Truman's other wife, a woman named Triolet, met me. She was perhaps in her sixties, with dark skin and deep gray eyes. She had been introduced to me the previous day, but in the confusion of meeting numerous people in what seemed to be a large extended family, I had not had a chance to really talk to her yet. There were always a number of people around the Singh household, and I was confused as to how, or even if, they were related to my hosts. Now, talking to her, I realized that she, in fact, was the one who had control of the Singh household finances.

The Singh family were farmers, I discovered. Or farm managers. The flora in Hyptia was decorative or served to keep the air in the dome refreshed, but the real agriculture was in separate domes, floating at an altitude that was optimized for plant growth and had no inhabitants. Automated equipment did the work of sowing and irrigation and harvest. Truman and Epiphany Singh were operational engineers, making those decisions that required a human input, watching that the robots kept on track and were doing the right things at the right times.

And there was a message waiting for me, inviting me in the evening to attend a dinner with His Excellency, Carlos Fernando Delacroix Ortega de la Jolla y Nordwald-Gruenbaum.

Triolet helped me with my wardrobe, along with Epiphany, who had returned by the time I was ready to prepare. They both told me emphatically that my serviceable but well-worn jumpsuit was not appropriate attire. The gown Triolet selected was far gaudier than anything I would have chosen for myself, an electric shade of indigo accented with a wide midnight black sash. "Trust us, it will be suitable," Epiphany told me. Despite its bulk, it was as light as a breath of air.

"All clothes here are light," Epiphany told me. "Spider's silk."

"Ah, I see" I said. "Synthetic spider silk. Strong and light; very practical."

"Synthetic?" Epiphany asked, and giggled. "No, not synthetic. It's real."

"The silk is actually woven by spiders?"

"No, the whole garment is." At my puzzled look, she said, "Teams of spiders. They work together."

"Spiders."

"Well, they're natural weavers, you know. And easy to transport."

I arrived at the banquet hall at the appointed time and found that the plasma-arc blue gown that Epiphany had selected for me was the most conservative dress there. There were perhaps thirty people present, but Leah was clearly the center. She seemed happy with the attention, more animated than I'd recalled seeing her before.

"They're treating you well?" I asked, when I'd finally made it through the crowd to her.

“Oh, indeed.”

I discovered I had nothing to say. I waited for her to ask about me, but she didn't. “Where have they given you to stay?”

“A habitat next section over,” she said. “Sector Carbon. It's amazing—I've never seen so many birds.”

“That's the sector I'm in,” I said, “but they didn't tell me where you were.”

“Really? That's odd.” She tapped up a map of the residential sector on a screen built into the diamond tabletop, and a three-dimensional image appeared to float inside the table. She rotated it and highlighted her habitat, and I realized that she was indeed adjacent, in a large habitat that was almost directly next to the complex I was staying in. “It's a pretty amazing place. But mostly I've been here in the upcity. Have you talked to Carli much yet? He's a very clever kid. Interested in everything—botany, physics, even engineering.”

“Really?” I said. “I don't think they'll let me into the upcity.”

“You're kidding; I'm sure they'll let you in. Hey—” she called over one of the guards. “Say, is there any reason Tinkerman can't come up to the centrum?”

“No, madam, if you want it, of course not.”

“Great. See, no problem.”

And then the waiters directed me to my place at the far end of the table.

The table was a thick slab of diamond, the faceted edges collecting and refracting rainbows of color. The top was as smooth and slippery as a sheet of ice. Concealed inside were small computer screens so that any of the diners who wished could call up graphics or data as needed during a conversation. The table was both art and engineering, practical and beautiful at the same time.

Carlos Fernando sat at the end of the table. He seemed awkward and out of place in a chair slightly too large for him. Leah sat at his right, and an older woman—perhaps his mother?—on his left. He was bouncing around in his chair, alternating between playing with the computer system in his table and sneaking glances over at Leah when he thought she wasn't paying attention to him. If she looked in his direction, he would go still for a moment, and then his eyes would quickly dart away and he went back to staring at the graphics screen in front of him and fidgeting.

The server brought a silver tray to Carlos Fernando. On it was something the size of a fist, hidden under a canopy of red silk. Carlos Fernando looked up, accepted it with a nod, and removed the cloth. There was a moment of silence as people looked over, curious. I strained to see it.

It was a sparkling egg.

The egg was cunningly wrought of diamond fibers of many colors, braided into intricate lacework resembling entwined Celtic knots. The twelve-year-old satrap of Venus picked it up and ran one finger over it, delicately, barely brushing the surface, feeling the corrugations and relief of the surface.

He held it for a moment, as if not quite sure what he should do with it, and then his hand darted over and put the egg on the plate in front of Leah. She looked up, puzzled.

“This is for you,” he said.

The faintest hint of surprise passed through the other diners, almost subvocal, too soft to be heard.

A moment later the servers set an egg in front of each of us. Our eggs, although decorated with an intricate filigree of finely painted lines of gold and pale verdigris, were ordinary eggs—goose eggs, perhaps.

Carlos Fernando was fidgeting in his chair, half grinning, half biting his lip, looking down, looking around, looking everywhere except at the egg or at Leah.

“What am I to do with this?” Leah asked.

"Why," he said, "perhaps you should open it up and eat it."

Leah picked up the diamond-laced egg and examined it, turned it over and rubbed one finger across the surface. Then, having found what she was looking for, she held it in two fingers and twisted. The diamond eggshell opened, and inside it was a second egg, an ordinary one.

The kid smiled again and looked down at the egg in front of him. He picked up his spoon and cracked the shell, then spooned out the interior.

At this signal, the others cracked their own eggs and began to eat. After a moment, Leah laid the decorative shell to one side and did the same. I watched her for a moment, and then cracked my own egg.

It was, of course, excellent.

Later, when I was back with the Singh family, I was still puzzled. There had been some secret significance there that everybody else had seen, but I had missed. Mr. Singh was sitting with his older wife, Triolet, talking about accounts.

"I must ask a question," I said.

Truman Singh turned to me. "Ask," he said, "and I shall answer."

"Is there any particular significance," I said, "to an egg?"

"An egg?" Singh seemed puzzled. "Much significance, I would say. In the old days, the days of the asteroid miners, an egg was a symbol of luxury. Ducks were brought into the bigger habitats, and their eggs were, for some miners, the only food they would ever eat that was not a form of algae or soybean."

"A symbol of luxury," I said, musing. "I see. But I still don't understand it." I thought for a moment, and then asked, "Is there any significance to a gift of an egg?"

"Well, no," he said, slowly, "not exactly. An egg? Nothing, in and of itself."

His wife Triolet asked, "You are sure it's just an egg? Nothing else?"

"A very elaborate egg."

"Hmmm," she said, with a speculative look in her eye. "Not, maybe, an egg, a book, and a rock?"

That startled me a little. "A book and a rock?" The Bruno book—the very first thing Carlos Fernando had done on meeting Leah was to give her a book. But a rock? I hadn't see anything like that. "Why that?"

"Ah," she said. "I suppose you wouldn't know. I don't believe that our customs here in the sky cities are well known out there in the outer reaches."

Her mention of the outer reaches—Saturn and the Beyond—confused me for a moment, until I realized that, viewed from Venus, perhaps even Earth and the built worlds of the orbital clouds would be considered "outer."

"Here," she continued, "as in most of the ten thousand cities, an egg, a book, and a rock is a special gift. The egg is symbolic of life, you see; a book symbolic of knowledge; and a rock is the basis of all wealth, the minerals from the asteroid belt that built our society and bought our freedom."

"Yes? And all three together?"

"They are the traditional gesture of the beginning of courtship," she said.

"I still don't understand."

"If a young man gives a woman an egg, a book, and a rock," Truman said, "I should say this is his official sign that he is interested in courting her. If she accepts them, then she accepts his courtship."

"What? That's it, just like that, they're married?"

"No, no, no," he said. "It only means that she accepts the courtship—that she takes him seriously and, when it comes, she will listen to his proposal. Often a woman may have rocks and eggs from many young men. She doesn't have to accept, only take him seriously."

“Oh,” I said.

But it still made no sense. How old was Carlos Fernando, twenty Venus years? What was that, twelve Earth years or so? He was far too young to be proposing.

“No one can terraform Venus,” Carlos Fernando said.

Carlos Fernando had been uninterested in having me join in Leah’s discussion, but Leah, oblivious to her host’s displeasure (or perhaps simply not caring), had insisted that if he wanted to talk about terraforming, I should be there.

It was one room of Carlos Fernando’s extensive palaces, a rounded room, an enormous cavernous space that had numerous alcoves. I’d found them sitting in one of the alcoves, an indentation that was cozy but still open. The ubiquitous female guards were still there, but they were at the distant ends of the room, within command if Carlos Fernando chose to shout, but far enough to give them the illusion of privacy.

The furniture they were sitting on was odd. The chairs seemed sculpted of sapphire smoke, yet were solid to the touch. I picked one up and discovered that it weighed almost nothing at all. “Diamond aerogel,” Carlos Fernando said. “Do you like it?”

“It’s amazing,” I said. I had never before seen so much made out of diamond. And yet it made sense here, I thought; with carbon dioxide an inexhaustible resource surrounding the floating cities, it was logical that the floating cities would make as much as they could out of carbon. But still, I didn’t know you could make an aerogel of diamond. “How do you make it?”

“A new process we’ve developed,” Carlos Fernando said. “You don’t mind if I don’t go into the details. It’s actually an adaptation of an old idea, something that was invented back on Earth decades ago, called a molecular still.”

When Carlos Fernando mentioned the molecular still, I thought I saw a sharp flicker of attention from Leah. This was a subject she knew something about, I thought. But instead of following up, she went back to his earlier comment on terraforming.

“You keep asking questions about the ecology of Mars,” she said. “Why so many detailed questions about Martian ecopoiesis? You say you’re not interested in terraforming, but are you really? You aren’t thinking of the old idea of using photosynthetic algae in the atmosphere to reduce the carbon dioxide, are you? Surely you know that that can’t work.”

“Of course.” Carlos Fernando waved the question away. “Theoretical,” he said. “Nobody could terraform Venus, I know, I know.”

His pronouncement would have been more dignified if his voice had finished changing, but as it was, it wavered between squeaking an octave up and then going back down again, ruining the effect. “We simply have too much atmosphere,” he said. “Down at the surface, the pressure is over ninety bars—even if the carbon dioxide of the atmosphere could be converted to oxygen, the surface atmosphere would still be seventy times higher than the Earth’s atmospheric pressure.”

“I realize that,” Leah said. “We’re not actually ignorant, you know. So high a pressure of oxygen would be deadly—you’d burst into flames.”

“And the leftover carbon,” he said, smiling. “Hundreds of tons per square meter.”

“So what are you thinking?” she asked.

But in response, he only smiled. “Okay, I can’t terraform Venus,” he said. “So tell me more about Mars.”

I could see that there was something that he was keeping back. Carlos Fernando had some idea that he wasn’t telling.

But Leah did not press him, and instead took the invitation to tell him about her

studies of the ecology on Mars, as it had been transformed long ago by the vanished engineers of the long-gone Freehold Toynbee colony. The Toynbee's engineers had designed life to thicken the atmosphere of Mars, to increase the greenhouse effect, to melt the frozen oceans of Mars.

"But it's not working," Leah concluded. "The anaerobic life is being out-competed by the photosynthetic oxygen-producers. It's pulling too much carbon dioxide out of the atmosphere."

"But what about the Gaia effect? Doesn't it compensate?"

"No," Leah said. "I found no trace of a Lovelock self-aware planet. Either that's a myth, or else the ecology on Mars is just too young to stabilize."

"Of course on Venus, we would have no problem with photosynthesis removing carbon dioxide."

"I thought you weren't interested in terraforming Venus," I said.

Carlos Fernando waved my objection away. "A hypothetical case, of course," he said. "A thought exercise." He turned to Leah. "Tomorrow," he said, "would you like to go kayaking?"

"Sure," she said.

Kayaking, on Venus, did not involve water.

Carlos Fernando instructed Leah, and Epiphany helped me.

The "kayak" was a ten-meter long gas envelope, a transparent cylinder of plastic curved into an ogive at both ends, with a tiny bubble at the bottom where the kayaker sat. One end of the kayak held a huge, gossamer-bladed propeller that turned lazily as the kayaker pedaled, while the kayaker rowed with flimsy wings, transparent and iridescent like the wings of a dragonfly.

The wings, I discovered, had complicated linkages; each one could be pulled, twisted, and lifted, allowing each wing to separately beat, rotate, and camber.

"Keep up a steady motion with the propeller," Epiphany told me. "You'll lose all your maneuverability if you let yourself float to a stop. You can scull with the wings to put on a burst of speed if you need to. Once you're comfortable, use the wings to rise up or swoop down, and to maneuver. You'll have fun."

We were in a launching bay, a balcony protruding from the side of the city. Four of the human-powered dirigibles that they called kayaks were docked against the blister, the bulge of the cockpits neatly inserted into docking rings so that the pilots could enter the dirigible without exposure to the outside atmosphere. Looking out across the cloudscape, I could see dozens of kayaks dancing around the city like transparent squid with stubby wings, playing tag with each other and racing across the sky. So small and transparent compared to the magnificent clouds, they had been invisible until I'd known how to look.

"What about altitude?" I asked.

"You're about neutrally buoyant," she said. "As long as you have airspeed, you can use the wings to make fine adjustments up or down."

"What happens if I get too low?"

"You can't get too low. The envelope has a reservoir of methanol; as you get lower, the temperature rises and your reservoir releases vapor, so the envelope inflates. If you gain too much altitude, vapor condenses out. So you'll find you're regulated to stay pretty close to the altitude you're set for, which right now is," she checked a meter, "fifty-two kilometers above local ground level. We're blowing west at a hundred meters per second, so local ground level will change as the terrain below varies; check your meters for altimetry."

Looking downward, nothing was visible at all, only clouds, and below the clouds, an infinity of haze. It felt odd to think of the surface, over fifty kilometers straight

down, and even odder to think that the city we were inside was speeding across that invisible landscape at hundreds of kilometers an hour. There was only the laziest feeling of motion, as the city drifted slowly through the ever-changing canyons of clouds.

“Watch out for wind shear,” she said. “It can take you out of sight of the city pretty quickly, if you let it. Ride the conveyor back if you get tired.”

“The conveyor?”

“Horizontal-axis vortices. They roll from west to east and east to west. Choose the right altitude, and they’ll take you wherever you want to go.”

Now that she’d told me, I could see the kayakers surfing the wind shear, rising upward and skimming across the sky on invisible wheels of air.

“Have fun,” she said. She helped me into the gondola, tightened my straps, looked at the gas pressure meter, checked the purge valve on the emergency oxygen supply, and verified that the radio, backup radio, and emergency locator beacons worked.

Across the kayak launch bay, Leah and Carlos Fernando had already pushed off. Carlos was sculling his wings alternately with a practiced swishing motion, building up a pendulum-like oscillation from side to side. Even as I watched, his little craft rolled over until for a moment it hesitated, inverted, and then rolled completely around.

“Showing off,” Epiphany said, disdainfully. “You’re not supposed to do that. Not that anybody would dare correct him.”

She turned back to me. “Ready?” she asked.

“Ready as I’m going to be,” I said. I’d been given a complete safety briefing that explained the backup systems and the backups to the backups, but still, floating in the sky above a fifty-two kilometer drop into the landscape of hell seemed an odd diversion.

“Go!” she said. She checked the seal on the cockpit and then with one hand she released the docking clamp.

Freed from its mooring, the kayak sprang upward into the sky. As I’d been instructed, I banked the kayak away from the city. The roll made me feel suddenly giddy. The kayak skittered, sliding around until it was moving sideways to the air, the nose dipping down so that I was hanging against my straps. Coordinate the turn, I thought, but every slight motion I made with the wings seemed amplified drunkenly, and the kayak wove around erratically.

The radio blinked at me, and Epiphany’s voice said, “You’re doing great. Give it some airspeed.”

I wasn’t doing great; I was staring straight down at lemon-tinted haze and spinning slowly around like a falling leaf. Airspeed? I realize that I had entirely forgotten to pedal. I pedaled now, and the nose lifted. The sideways spin damped out, and as I straightened out, the wings bit into the air. “Great,” Epiphany’s voice told me. “Keep it steady.”

The gas envelope seemed too fragile to hold me, but I was flying now, suspended below a golden sky. It was far too complicated, but I realized that as long as I kept the nose level, I could keep it under control. I was still oscillating slightly—it was difficult to avoid over-controlling—but on the average, I was keeping the nose pointed where I aimed it.

Where were Leah and Carlos Fernando?

I looked around. Each of the kayaks had different markings—mine was marked with gray stripes like a tabby cat—and I tried to spot theirs.

A gaggle of kayaks was flying together, rounding the pylon of the city. As they moved around the pylon they all turned at once, flashing in the sunlight like a startled school of fish.

Suddenly I spotted them, not far above me, close to the looming wall of the city; the royal purple envelope of Carlos Fernando's kayak and the blue and yellow stripes of Leah's. Leah was circling in a steady climb, and Carlos Fernando was darting around her, now coming in fast and bumping envelopes, now darting away and pulling up, hovering for a moment with his nose pointed at the sky, then skewing around and sliding back downward.

Their motions looked like the courtship dance of birds.

The purple kayak banked around and swooped out and away from the city; and an instant later, Leah's blue and yellow kayak banked and followed. They both soared upward, catching a current of air invisible to me. I could see a few of the other fliers surfing on the same updraft. I yawed my nose around to follow them, but made no progress; I was too inexperienced with the kayak to be able to guess the air currents, and the wind differential was blowing me around the city in exactly the opposite of the direction I wanted to go. I pulled out and away from the city, seeking a different wind, and for an instant I caught a glimpse of something in the clouds below me, dark and fast moving.

Then I caught the updraft. I could feel it, the wings caught the air and it felt like an invisible giant's hand picking me up and carrying me—

Then there was a sudden noise, a stuttering and ripping, followed by a sound like a snare drum. My left wing and propeller ripped away, the fragments spraying into the sky. My little craft banked hard to the left. My radio came to life, but I couldn't hear anything as the cabin disintegrated around me. I was falling.

Falling.

For a moment I felt like I was back in zero-g. I clutched uselessly to the remains of the control surfaces, connected by loose cords to fluttering pieces of debris. Pieces of my canopy floated away and were caught by the wind and spun upward and out of sight. The atmosphere rushed in and my eyes started to burn. I made the mistake of taking a breath, and the effect was like getting kicked in the head. Flickering purple dots, the colors of a bruise, closed in from all directions. My vision narrowed to a single bright tunnel. The air was liquid fire in my lungs. I reached around, desperately, trying to remember the emergency instructions before I blacked out, and my hands found the back-up air-mask between my legs. I was still strapped into my seat, although the seat was no longer attached to a vehicle, and I slapped the breathing mask against my face and sucked hard to start the airflow from the emergency oxygen. I was lucky; the oxygen cylinder was still attached to the bottom of the seat, as the seat, with me in it, tumbled through the sky. Through blurred eyes, I could see the city spinning above me. I tried to think of what the emergency procedure could be and what I should do next, but I could only think of what had gone wrong. What had I done? For the life of me I couldn't think of anything that I could have done that would have ripped the craft apart.

The city dwindled to the size of an acorn, and then I fell into the cloud layer and everything disappeared into a pearly white haze. My skin began to itch all over. I squeezed my eyes shut against the acid fog. The temperature was rising. How long would it take to fall fifty kilometers to the surface?

Something enormous and metallic swooped down from above me, and I blacked out.

Minutes or hours or days later I awoke in a dimly lit cubicle. I was lying on the ground and two men wearing masks were spraying me with jets of a foaming white liquid that looked like milk but tasted bitter. My flight suit was in shreds around me.

I sat up and began to cough uncontrollably. My arms and my face itched like blazes, but when I started to scratch, one of the men reached out and slapped my hands away.

“Don’t scratch.”

I turned to look at him, and the one behind me grabbed me by the hair and smeared a handful of goo into my face, rubbing it hard into my eyes.

Then he picked up a patch of cloth and tossed it to me. “Rub this where it itches. It should help.”

I was still blinking, my face dripping, my vision fuzzy. The patch of cloth was wet with some gelatinous slime. I grabbed it from him, and dabbed it on my arms and then rubbed it in. It did help, some.

“Thanks,” I said. “What the hell—”

The two men in facemasks looked at each other. “Acid burn,” the taller man said. “You’re not too bad. A minute or two of exposure won’t leave scars.”

“What?”

“Acid. You were exposed to the clouds.”

“Right.”

Now that I wasn’t quite so distracted, I looked around. I was in the cargo hold of some sort of aircraft. There were two small round portholes on either side. Although nothing was visible through them but a blank white, I could feel that the vehicle was in motion. I looked at the two men. They were both rough characters. Unlike the brightly colored spider’s-silk gowns of the citizens of Hypatia, they were dressed in clothes that were functional but not fancy, jumpsuits of a dark gray color with no visible insignia. Both of them were fit and well muscled. I couldn’t see their faces, since they were wearing breathing masks and lightweight helmets, but under their masks I could see that they both wore short beards, another fashion that had been missing among the citizens of Hypatia. Their eyes were covered with amber-tinted goggles, made in a crazy style that cupped each eye with a piece that was rounded like half an eggshell, apparently stuck to their faces by some invisible glue. It gave them a strange, bug-eyed look. They stared at me, but behind their facemasks and goggle-eyes I was completely unable to read their expressions.

“Thanks,” I said. “So, who are you? Some sort of emergency rescue force?”

“I think you know who we are,” the taller one said. “The question is who the hell are you?”

I stood up and reached out a hand, thinking to introduce myself, but both of the men took a step back. Without seeming to move his hand, the taller one now had a gun, a tiny omniblaster of some kind. Suddenly a lot of things were clear.

“You’re pirates,” I said.

“We’re the Venus underground,” he said. “We don’t like the word pirates very much. Now, if you don’t mind, I have a question, and I really would like an answer. Who the hell are you?”

So I told him.

The first man started to take off his helmet, but the taller pirate stopped him. “We’ll keep the masks on for now. Until we decide he’s safe.” The taller pirate said he was named Esteban Jaramillo, the shorter one Esteban Francisco. That was too many Estebans, I thought, and decided to tag the one Jaramillo and the other Francisco.

I discovered from them that not everybody in the floating cities thought of Venus as a paradise. Some of the independent cities considered the clan of Nordwald-Gruenbaum to be well on its way to becoming a dictatorship. “They own half of Venus outright, but that’s not good enough for them, no, oh no,” Jaramillo told me. “They’re stinking rich, but not stinking rich enough, and the very idea that there are free cities floating in the sky, cities that don’t swear fealty to them and pay their god-damned taxes, that pisses them off. They’ll do anything that they can to crush us. Us? We’re just fighting back.”

I would have been more inclined to see his point if I didn't have the uncomfortable feeling that I'd just been abducted. It had been a tremendous stroke of luck for me that their ship had been there to catch me when my kayak broke apart and fell. I didn't much believe in luck. And they didn't bother to answer when I asked about being returned to Hypatia. It was pretty clear that the direction we were headed was not back toward the city.

I had given them my word that I wouldn't fight or try to escape—where would I escape to?—and they'd accepted it. Once they realized that I wasn't whom they had expected to capture, they'd pressed me for news of the outside.

There were three of them in the small craft: the two Estebans and the pilot, who was never introduced. He did not bother to turn around to greet me and all I ever saw of him was the back of his helmet. The craft itself they called a manta; an odd thing that was partly an airplane, partly dirigible, and partly a submarine. Once I'd given my word that I wouldn't escape, I was allowed to look out, but there was nothing to see but a luminous golden haze.

"We keep the manta flying under the cloud decks," Jaramillo said. "Keeps us invisible."

"Invisible to whom?" I asked, but neither one of them bothered to answer. It was a dumb question anyway; I could very well guess who they wanted to keep out of sight of. "What about radar?" I said.

Esteban looked at Esteban, and then at me. "We have means to deal with radar," he said. "Just leave it at that and stop it with the questions you should know enough not to ask."

They seemed to be going somewhere, and eventually the manta exited the cloud-bank into the clear air above. I pressed toward the porthole, trying to see out. The cloudscape of Venus were still fascinating to me. We were skimming the surface of the cloud deck—ready to duck under if there were any sign of watchers, I surmised. From the cloudscape it was impossible to tell how far we'd come, whether it was just a few leagues or halfway around the planet. None of the floating cities were visible, but in the distance I spotted the fat torpedo shape of a dirigible. The pilot saw it as well, for we banked toward it and sailed slowly up, slowing down as we approached, until it disappeared over our heads, and the hull resonated with a sudden impact, then a ratcheting clang.

"Soft dock," Jaramillo commented, and then a moment later another clang, and the nose of the craft was suddenly jerked up. "Hard dock," he said. The two Estebans seemed to relax a little, and a whine and a rumble filled the little cabin. We were being winched up into the dirigible.

After ten minutes or so, we came to rest in a vast interior space. The manta had been taken inside the envelope of the gas chamber, I realized. Half a dozen people met us.

"Sorry," Jaramillo said, "but I'm afraid we're going to have to blind you. Nothing personal."

"Blind?" I said, but actually that was good news. If they did not intend to release me, they wouldn't care what I saw.

Jaramillo held my head steady while Francisco placed a set of the goggle-eyed glasses over my eyes. They were surprisingly comfortable. Whatever held them in place, they were so light that I could scarcely feel that they were there. The amber tint was barely noticeable. After checking that they fit, Francisco tapped the side of the goggles with his fingertip, once, twice, three times, four times. Each time he touched the goggles, the world grew darker, and with a fifth tap, all I could see was inky black. Why would sunglasses have a setting for complete darkness, I thought? And then I answered my own question: the last setting must be for e-beam welding.

Pretty convenient, I thought. I wondered if I dared to ask them if I could keep the set of goggles when they were done.

"I am sure you won't be so foolish as to adjust the transparency," one of the Estebans said.

I was guided out the manta's hatch and across the hangar, and then to a seat.

"This the prisoner?" a voice asked.

"Yeah," Jaramillo said. "But the wrong one. No way to tell, but we guessed wrong, got the wrong flyer."

"Shit. So who is he?"

"Technician," Jaramillo said. "From the up and out."

"Really? So does he know anything about the Nordwald-Gruenbaum plan?"

I spread my hands out flat, trying to look harmless. "Look, I only met the kid twice, or I guess three times, if you—"

That caused some consternation; I could hear a sudden buzz of voices, in a language I didn't recognize. I wasn't sure how many of them there were, but it seemed like at least half a dozen. I desperately wished I could see them, but that would very likely be a fatal move. After a moment, Jaramillo said, his voice now flat and expressionless, "You know the heir of Nordwald-Gruenbaum? You met Carlos Fernando in person?"

"I met him. I don't know him. Not really."

"Who did you say you were again?"

I went through my story, this time starting at the very beginning, explaining how we had been studying the ecology of Mars, how we had been summoned to Venus to meet the mysterious Carlos Fernando. From time to time I was interrupted to answer questions—what was my relationship with Leah Hamakawa? (I wished I knew). Were we married? Engaged? (No. No.) What was Carlos Fernando's relationship with Dr. Hamakawa? (I wished I knew). Had Carlos Fernando ever mentioned his feelings about the independent cities? (No.) His plans? (No.) Why was Carlos Fernando interested in terraforming? (I don't know.) What was Carlos Fernando planning? (I don't know.) Why did Carlos Fernando bring Hamakawa to Venus? (I wished I knew.) What was he planning? What was he planning? (I don't know. I don't know.)

The more I talked, the more sketchy it seemed, even to me.

There was silence when I had finished talking. Then the first voice said, "Take him back to the manta."

I was led back inside and put into a tiny space, and a door clanged shut behind me. After a while, when nobody answered my call, I reached up to the goggles. They popped free with no more than a light touch, and, looking at them, I was still unable to see how they attached. I was in a storage hold of some sort. The door was locked.

I contemplated my situation, but I couldn't see that I knew any more now than I had before, except that I now knew that not all of the Venus cities were content with the status quo, and some of them were willing to go to some lengths to change it. They had deliberately shot me down, apparently thinking that I was Leah—or possibly even hoping for Carlos Fernando? It was hard to think that he would have been out of the protection of his bodyguards. Most likely, I decided, the bodyguards had been there, never letting him out of sight, ready to swoop in if needed, but while Carlos Fernando and Leah had soared up and around the city, I had left the sphere covered by the guards, and that was the opportunity the pirates in the manta had taken. They had seen the air kayak flying alone and shot it out of the sky, betting my life on their skill, that they could swoop in and snatch the falling pilot out of mid-air.

They could have killed me, I realized.

And all because they thought I knew something—or rather, that Leah Hamakawa knew something—about Carlos Fernando's mysterious plan.

What plan? He was a twelve-year-old kid, not even a teenager, barely more than an overgrown child! What kind of plan could a kid have?

I examined the chamber I was in, this time looking more seriously at how it was constructed. All the joints were welded, with no obvious gaps, but the metal was light, probably an aluminum-lithium alloy. Possibly malleable, if I had the time, if I could find a place to pry at, if I could find something to pry with.

If I did manage to escape, would I be able to pilot the manta out of its hangar in the dirigible? Maybe. I had no experience with lighter than air vehicles, though, and it would be a bad time to learn, especially if they decided that they wanted to shoot at me. And then I would be—where? A thousand miles from anywhere. Fifty million miles from anywhere I knew.

I was still mulling this over when Esteban and Esteban returned.

“Strap in,” Esteban Jaramillo told me. “Looks like we’re taking you home.”

The trip back was more complicated than the trip out. It involved two or more transfers from vehicle to vehicle, during some of which I was again “requested” to wear the opaque goggles.

We were alone in the embarking station of some sort of public transportation. For a moment, the two Estebans had allowed me to leave the goggles transparent. Wherever we were, it was unadorned, drab compared to the florid excess of Hypatia, where even the bus stations—did they have bus stations?—would have been covered with flourishes and artwork.

Jaramillo turned to me and, for the first time, pulled off his goggles so he could look me directly in the eye. His eyes were dark, almost black, and very serious,

“Look,” he said, “I know you don’t have any reason to like us. We’ve got our reasons, you have to believe that. We’re desperate. We know that his father had some secret projects going. We don’t know what they were, but we know he didn’t have any use for the free cities. We think the young Gruenbaum has something planned. If you can get through to Carlos Fernando, we want to talk to him.”

“If you get him,” Esteban Francisco said, “Push him out a window. We’ll catch him. Easy.” He was grinning with a broad smile, showing all his teeth, as if to say he wasn’t serious, but I wasn’t at all sure he was joking.

“We don’t want to kill him. We just want to talk,” Esteban Jaramillo said. “Call us. Please. Call us.”

And with that, he reached up and put his goggles back on. Then Francisco reached over and tapped my goggles into opacity, and everything was dark. With one on either side of me, we boarded the transport—bus? Zeppelin? Rocket?

Finally I was led into a chamber and was told to wait for two full minutes before removing the goggles, and after that I was free to do as I liked.

It was only after the footsteps had disappeared that it occurred to me to wonder how I was supposed to contact them, if I did have a reason to. It was too late to ask, though; I was alone, or seemed to be alone.

Was I being watched to see if I would follow orders, I wondered? Two full minutes. I counted, trying not to rush the count. When I got to a hundred and twenty, I took a deep breath and finger-tapped the goggles to transparency.

When my eyes focused, I saw I was in a large disembarking lounge with genetically engineered pink grass and sculptures of iron and jade. I recognized it. It was the very same lounge at which we had arrived at Venus three days ago—was it only three? Or had another day gone by?

I was back in Hypatia City.

Once again I was surrounded and questioned. As with the rest of Carlos Fernan-

do's domain, the questioning room was lushly decorated with silk-covered chairs and elegant teak carvings, but it was clearly a holding chamber.

The questioning was by four women, Carlos Fernando's guards, and I had the feeling that they would not hesitate to tear me apart if they thought I was being less than candid with them. I told them what had happened, and at every step they asked questions, making suggestions as to what I could have done differently. Why had I taken my kayak so far away from any of the other fliers and out away from the city? Why had I allowed myself to be captured without fighting? Why didn't I demand to be returned and refuse to answer any questions? Why could I describe none of the rebels I'd met, except for two men who had—as far as they could tell from my descriptions—no distinctive features?

At the end of their questioning, when I asked to see Carlos Fernando, they told me that this would not be possible.

"You think I allowed myself to be shot down deliberately?" I said, addressing myself to the chief among the guards, a lean woman in scarlet silk.

"We don't know what to think, Mr. Tinkerman," she said. "We don't like to take chances."

"What now, then?"

"We can arrange transport to the built worlds," she said. "Or even to the Earth."

"I don't plan to leave without Dr. Hamakawa," I said.

She shrugged. "At the moment, that's still your option, yes," she said. "At the moment."

"How can I get in contact with Dr. Hamakawa?"

She shrugged. "If Dr. Hamakawa wishes, I'm sure she will be able to contact you."

"And if I want to speak to her?"

She shrugged. "You're free to go now. If we need to talk to you, we can find you."

I had been wearing one of the gray jumpsuits of the pirates when I'd been returned to Hypatia; the guard women had taken that away. Now they gave me a suit of spider-silk in a lavender brighter than the garb an expensive courtesan would wear in the built worlds surrounding Earth, more of an evening gown than a suit. It was nevertheless subdued compared to the day-to-day attire of Hypatia citizens, and I attracted no attention. I discovered that the goggle-eyed sunglasses had been neatly placed in a pocket at the knees of the garment. Apparently people on Venus keep their sunglasses at their knees. Convenient when you're sitting, I supposed. They hadn't been recognized as a parting gift from the pirates, or, more likely, had been considered so trivial as to not be worth confiscating. I was unreasonably pleased; I liked those glasses.

I found the Singh habitat with no difficulty, and when I arrived, Epiphany and Truman Singh were there to welcome me and to give me the news.

My kidnapping was already old news. More recent news was being discussed everywhere.

Carlos Fernando Delacroix Ortega de la Jolla y Nordwald-Gruenbaum had given a visitor from the outer solar system, Dr. Leah Hamakawa—a person who (they had heard) had actually been born on Earth—a rock.

And she had not handed it back to him.

My head was swimming.

"You're saying that Carlos Fernando is proposing marriage? To Leah? That doesn't make any sense. He's a kid, for Jove's sake. He's not old enough."

Truman and Epiphany Singh looked at one another and smiled. "How old were you when we got married?" Truman asked her. "Twenty?"

"I was almost twenty-one before you accepted my book and my rock," she said.

"So, in Earth years, what's that?" he said. "Thirteen?"

"A little over twelve," she said. "About time I was married up, I'd say."

"Wait," I said. "You said you were twelve years old when you got married?"

"Earth years," she said. "Yes, that's about right."

"You married at twelve? And you had—" I suddenly didn't want to ask, and said, "Do all women on Venus marry so young?"

"There are a lot of independent cities," Truman said. "Some of them must have different customs, I suppose. But it's the custom more or less everywhere I know."

"But that's—" I started to say, but couldn't think of how to finish. Sick? Perverted? But then, there were once a lot of cultures on Earth that had child marriages.

"We know the outer reaches have different customs," Epiphany said. "Other regions do things differently. The way we do it works for us."

"A man typically marries up at age twenty-one or so," Truman explained. "Say, twelve, thirteen years old, in Earth years. Maybe eleven. His wife will be about fifty or sixty—she'll be his instructor, then, as he grows up. What's that in Earth years—thirty? I know that in old Earth custom, both sides of a marriage are supposed to be the same age, but that's completely silly, is it not? Who's going to be the teacher, I should say?"

"And then, when he grows up, by the time he reaches sixty or so he'll marry down, find a girl who's about twenty or twenty-one, and he'll serve as a teacher to her, I should say. And, in time, she'll marry down when she's sixty, and so on."

It seemed like a form of ritualized child abuse to me, but I thought it would be better not to say that aloud. Or, I thought, maybe I was reading too much into what he was saying. It was something like the medieval apprentice system. When he said teaching, maybe I was jumping to conclusions to think that he was talking about sex. Maybe they held off on the sex until the child grew up some. I thought I might be happier not knowing.

"A marriage is braided like a rope," Epiphany said. "Each element holds the next."

I looked from Truman to Epiphany and back. "You, too?" I asked Truman. "You were married when you were twelve?"

"In Earth years, I was thirteen when I married up Triolet," he said. "Old. Best thing that ever happened to me. God, I needed somebody like her to straighten me out back then. And I needed somebody to teach me about sex, I should say, although I didn't know it back then."

"And Triolet—"

"Oh, yes, and her husband before her, and before that. Our marriage goes back a hundred and ninety years, to when Raj Singh founded our family; we're a long braid, I should say."

I could picture it now. Every male in the braid would have two wives, one twenty years older, one twenty years younger. And every female would have an older and a younger husband. The whole assembly would indeed be something you could think of as a braid, alternating down generations. The interpersonal dynamics must be terribly complicated. And then I suddenly remembered why we were having this discussion. "My god," I said. "You're serious about this. So you're saying that Carlos Fernando isn't just playing a game. He actually plans to marry Leah."

"Of course," Epiphany said. "It's a surprise, but then, I'm not at all surprised. It's obviously what His Excellency was planning right from the beginning. He's a devious one, he is."

"He wants to have sex with her."

She looked surprised. "Well, yes, of course. Wouldn't you? If you were twenty—I mean, twelve years old? Sure you're interested in sex. Weren't you? It's about time His Excellency had a teacher." She paused a moment. "I wonder if she's any good? Earth people—she probably never had a good teacher of her own."

That was a subject I didn't want to pick up on. Our little fling on Mars seemed a long way away, and my whole body ached just thinking of it.

"Sex, it's all that young kids think of," Truman cut in. "Sure. But for all that, I should say that sex is the least important part of a braid. A braid is a business, Mr. Tinkerman, you should know that. His Excellency Carlos Fernando is required to marry up into a good braid. The tradition, and the explicit terms of the inheritance, are both very clear. There are only about five braids on Venus that meet the standards of the trust, and he's too closely related to half of them to be able to marry in. Everybody has been assuming he would marry the wife of the Telios Delacroix braid; she's old enough to marry down now, and she's not related to him closely enough to matter. His proposition to Dr. Hamakawa—yes, that has everybody talking."

I was willing to grasp at any chance. "You mean his marriage needs to be approved? He can't just marry anybody he likes?"

Truman Singh shook his head. "Of course he can't! I just told you. This is business as well as propagating the genes for the next thousand years. Most certainly he can't marry just anybody."

"But I think he just outmaneuvered them all," Epiphany added. "They thought they had him boxed in, didn't they? But they never thought that he'd go find an out-worlder."

"They?" I said. "Who's they?"

"They never thought to guard against that," Epiphany continued.

"But he can't marry her, right?" I said. "For sure, she's not of the right family. She's not of any family. She's an orphan, she told me that. The institute is her only family."

Truman shook his head. "I think Epiphany's right," he said. "He just may have outfoxed them, I should say. If she's not of a family, doesn't have the dozens or hundreds of braided connections that everybody here must have, that means they can't find anything against her."

"Her scientific credentials—I bet they won't be able to find a flaw there." Epiphany said. "And an orphan? That's brilliant. Just brilliant. No family ties at all. I bet he knew that. He worked hard to find just the right candidate, you can bet." She shook her head, smiling. "And we all thought he'd be another layabout, like his father."

"This is awful," I said. "I've got to do something."

"You? You're far too old for Dr. Hamakawa." Epiphany looked at me appraisingly. "A good looking man, though—if I were ten, fifteen years younger, I'd give you another look. I have cousins with girls the right age. You're not married, you say?"

Outside the Singh quarters in Sector Carbon, the Sun was breaking the horizon as the city blew into the daylit hemisphere.

I hadn't been sure whether Epiphany's offer to find me a young girl had been genuine, but it was not what I needed, and I'd refused as politely as I could manage.

I had gone outside to think, or as close to "outside" as the floating city allowed, where all the breathable gas was inside the myriad bubbles. But what could I do? If it was a technical problem, I would be able to solve it, but this was a human problem, and that had always been my weakness.

From where I stood, I could walk to the edge of the world, the transparent gas envelope that held the breathable air in and kept the carbon dioxide of the Venus atmosphere out. The Sun was surrounded by a gauzy haze of thin high cloud, and encircled by a luminous golden halo, with mock suns flying in formation to the left and the right. The morning sunlight slanted across the cloud tops. My eyes hurt from the direct sun. I remembered the sun goggles in my knee pocket and pulled them out. I pressed them onto my eyes and tapped on the right side until the world was comfortably dim.

Floating in the air, in capital letters barely darker than the background, were the words LINK: READY.

I turned my head, and the words shifted with my field of view, changing from dark letters to light depending on the background.

A communications link was open? Certainly not a satellite relay; the glasses couldn't have enough power to punch through to orbit. Did it mean the manta was hovering in the clouds below?

"Hello, hello," I said, talking to the air. "Testing. Testing?"

Nothing.

Perhaps it wasn't audio. I tapped the right lens: dimmer, dimmer, dark; then back to full transparency. Maybe the other side? I tried tapping the left eye of the goggle, and a cursor appeared in my field of view.

With a little experimentation, I found that tapping allowed input in the form of Gandy-encoded text. It seemed to be a low bit-rate text only; the link power must be minuscule. But Gandy was a standard encoding, and I tapped out "CQ CQ."

Seek you, seek you.

The LINK: READY message changed to a light green, and in a moment the words changed to HERE.

WHO, I tapped.

MANTA 7, was the reply. NEWS?

CF PROPOSED LH, I tapped. !

KNOWN, came the reply. MORE?

NO

OK. SIGNING OUT.

The LINK: READY message returned.

A com link, if I needed one. But I couldn't see how it helped me any.

I returned to examining the gas envelope. Where I stood was an enormous transparent pane, a square perhaps ten meters on an edge. I was standing near the bottom of the pane, where it abutted to the adjacent sheet with a joint of very thin carbon. I pressed on it and felt it flex slightly. It couldn't be more than a millimeter thick; it would make sense to make the envelope no heavier than necessary. I tapped it with the heel of my hand and could feel it vibrate; a resonant frequency of a few Hertz, I estimated. The engineering weak point would be the joint between panels: if the pane flexed enough, it would pop out from its mounting at the joint.

Satisfied that I had solved at least one technical conundrum, I began to contemplate what Epiphany had said. Carlos Fernando was to have married the wife of the Telios Delacroix braid. Whoever she was, she might be relieved at discovering Carlos Fernando making other plans; she could well think the arranged marriage as much a trap as he apparently did. But still. Who was she, and what did she think of Carlos Fernando's new plan?

The guards had made it clear that I was not to communicate with Carlos Fernando or Leah, but I had no instructions forbidding access to Braid Telios Delacroix.

The household seemed to be a carefully orchestrated chaos of children and adults of all ages, but now that I understood the Venus societal system a little, it made more sense. The wife of Telios Delacroix—once the wife-apparent of His Excellency Carlos Fernando—turned out to be a woman only a few years older than I was, with closely cropped gray hair. I realized I'd seen her before. At the banquet, she had been the woman sitting next to Carlos Fernando. She introduced herself as Miranda Telios Delacroix and introduced me to her up-husband, a stocky man perhaps sixty years old.

"We could use a young husband in this family," he told me. "Getting old, we are, and you can't count on children—they just go off and get married themselves."

There were two girls there, who Miranda Delacroix introduced as their two children. They were quiet, attempting to disappear into the background, smiling brightly but with their heads bowed, looking up at me through lowered eyelashes when they were brought out to be introduced. After the adults' attention had turned away from them, I noticed both surreptitiously studying me. A day ago I wouldn't even have noticed.

"Now, either come and sit nicely and talk, or else go do your chores," Miranda told them. "I'm sure the outworlder is quite bored with your buzzing in and out."

They both giggled and shook their heads and then disappeared into another room, although from time to time one or the other head would silently pop out to look at me, disappearing instantly if I turned to look.

We sat down at a low table that seemed to be made of oak. Miranda's husband brought in some coffee and then left us alone. The coffee was made in the Thai style, in a clear cup, in layers with thick sweet milk.

"So you are Dr. Hamakawa's friend," she said. "I've heard a lot about you. Do you mind my asking, what exactly is your relationship with Dr. Hamakawa?"

"I would like to see her," I said.

She frowned. "So?"

"And I can't."

She raised an eyebrow.

"He has these woman, these bodyguards—"

Miranda Delacroix laughed. "Ah, I see! Oh, my little Carli is just too precious for words. I can't believe he's jealous. I do think that this time he's really infatuated." She tapped on the tabletop with her fingers for a moment, and I realized that the oak tabletop was another one of the embedded computer systems. "Goodness, Carli is not yet the owner of everything, and I don't see why you shouldn't see whoever you like. I've sent a message to Dr. Hamakawa that you would like to see her."

"Thank you."

She waved her hand.

It occurred to me that Carlos Fernando was about the same age as her daughters, perhaps even a classmate of theirs. She must have known him since he was a baby. It did seem a little unfair to him—if they were married, she would have all the advantage, and for a moment I understood his dilemma. Then something she had said struck me.

"He's not yet owner of everything," I repeated. "I don't understand your customs, Mrs. Delacroix. Please enlighten me. What do you mean, yet?"

"Well, you know that he doesn't come into his majority until he's married," she said.

The picture was beginning to make sense. Carlos Fernando desperately wanted to control things, I thought. And he needed to be married to do it. "And once he's married?"

"Then he comes into his inheritance, of course," she said. "But since he'll be married, the braid will be in control of the fortune. You wouldn't want a twenty-one-year-old kid in charge of the entire Nordwald-Gruenbaum holdings. That would be ruinous. The first Nordwald knew that. That's why he married his son into the la Jolla braid. That's the way it's always been done."

"I see," I said. If Miranda Delacroix married Carlos Fernando, she—not he—would control the Nordwald-Gruenbaum fortune. She had the years of experience, she knew the politics, how the system worked. He would be the child in the relationship. He would always be the child in the relationship.

Miranda Delacroix had every reason to want to make sure Leah Hamakawa didn't marry Carlos Fernando. She was my natural ally.

And also, she—and her husband—had every reason to want to kill Leah Hamakawa.

Suddenly the guards that followed Carlos Fernando seemed somewhat less of an affectation. Just how good were the bodyguards? And then I had another thought. Had she or her husband hired the pirates to shoot down my kayak? The pirates clearly had been after Leah, not me. They had known that Leah was flying a kayak; somebody must have been feeding them information. If it hadn't been her, then who?

I looked at her with new suspicions. She was looking back at me with a steady gaze. "Of course, if your Dr. Leah Hamakawa intends to accept the proposal, the two of them will be starting a new braid. She would nominally be the senior, of course, but I wonder—"

"But would she be allowed to?" I interrupted. "If she decided to marry Carlos Fernando, wouldn't somebody stop her?"

She laughed. "No, I'm afraid that little Carli made his plan well. He's the child of a Gruenbaum, all right. There are no legal grounds for the families to object; she may be an outworlder, but he's made an end run around all the possible objections."

"And you?"

"Do you think I have choices? If he decides to ask me for advice, I'll tell him it's not a good idea. But I'm halfway tempted to just see what he does."

And give up her chance to be the richest woman in the known universe? I had my doubts.

"Do you think you can talk her out of it?" she said. "Do you think you have something to offer her? As I understand it, you don't own anything. You're hired help, a gypsy of the solar system. Is there a single thing that Carli is offering her that you can match?"

"Companionship," I said. It sounded feeble, even to me.

"Companionship?" she echoed, sarcastically. "Is that all? I would have thought most outworlder men would promise love. You are honest, at least, I'll give you that."

"Yes, love," I said, miserable. "I'd offer her love."

"Love," she said. "Well, how about that. Yes, that's what outworlders marry for; I've read about it. You don't seem to know, do you? This isn't about love. It's not even about sex, although there will be plenty of that, I can assure you, more than enough to turn my little Carlos inside out and make him think he's learning something about love."

"This is about business, Mr. Tinkerman. You don't seem to have noticed that. Not love, not sex, not family. It's business."

Miranda Telios Delacroix's message had gotten through to Leah, and she called me up to her quarters. The woman guards did not seem happy about this, but they had apparently been instructed to obey her direct orders, and two red-clad guardswomen led me to her rooms.

"What happened to you? What happened to your face?" she said, when she saw me.

I reached up and touched my face. It didn't hurt, but the acid burns had left behind red splotches and patches of peeling skin. I filled her in on the wreck of the kayak and the rescue, or kidnapping, by pirates. And then I told her about Carlos. "Take another look at that book he gave you. I don't know where he got it, and I don't want to guess what it cost, but I'll say it's a sure bet it's no facsimile."

"Yes, of course," she said. "He did tell me, eventually."

"Don't you know it's a proposition?"

"Yes; the egg, the book, and the rock," she said. "Very traditional here. I know you like to think I have my head in the air all the time, but I do pay some attention to what's going on around me. Carli is a sweet kid."

“He’s serious, Leah. You can’t ignore him.”

She waved me off. “I can make my own decisions, but thanks for the warnings.”

“It’s worse than that,” I told her. “Have you met Miranda Telios Delacroix?”

“Of course,” she said.

“I think she’s trying to kill you.” I told her about my suspicion that the pirates had been hired to shoot me down, thinking I was her.

“I believe you may be reading too much into things, Tinkerman,” she said. “Carli told me about the pirates. They’re a small group, disaffected; they bother shipping and such, from time to time, but he says that they’re nothing to worry about. When he gets his inheritance, he says he will take care of them.”

“Take care of them? How?”

She shrugged. “He didn’t say.”

But that was exactly what the pirates—rebels—had told me: that Carlos had a plan, and they didn’t know what it was. “So he has some plans he isn’t telling,” I said.

“He’s been asking me about terraforming,” Leah said. “But it doesn’t make sense to do that on Venus. I don’t understand what he’s thinking. He could split the carbon dioxide atmosphere into oxygen and carbon; I know he has the technology to do that.”

“He does?”

“Yes, I think you were there when he mentioned it. The molecular still. It’s solar-powered micromachines. But what would be the point?”

“So he’s serious?”

“Seriously thinking about it, anyway. But it doesn’t make any sense. Nearly pure oxygen at the surface, at sixty or seventy bars? That atmosphere would be even more deadly than the carbon dioxide. And it wouldn’t even solve the greenhouse effect; with that thick an atmosphere, even oxygen is a greenhouse gas.”

“You explained that to him?”

“He already knew it. And the floating cities wouldn’t float any more. They rely on the gas inside—breathing air—being lighter than the Venusian air. Turn the Venus carbon dioxide to pure O₂, the cities fall out of the sky.”

“But?”

“But he didn’t seem to care.”

“So terraforming would make Venus uninhabitable and he knows it. So what’s he planning?”

She shrugged. “I don’t know.”

“I do,” I said. “And I think we’d better see your friend Carlos Fernando.”

Carlos Fernando was in his playroom.

The room was immense. His family’s quarters were built on the edge of the upcity, right against the bubble-wall, and one whole side of his playroom looked out across the cloudscape. The room was littered with stuff: sets of interlocking toy blocks with electronic modules inside that could be put together into elaborate buildings; models of spacecraft and various lighter-than-air aircraft, no doubt vehicles used on Venus; a contraption of transparent vessels connected by tubes that seemed to be a half-completed science project; a unicycle that sat in a corner, silently balancing on its gyros. Between the toys were pieces of light, transparent furniture. I picked up a chair, and it was no heavier than a feather, barely there at all. I knew what it was now, diamond fibers that had been engineered into a foamed, fractal structure. Diamond was their chief working material; it was something that they could make directly out of the carbon dioxide atmosphere, with no imported raw materials. They were experts in diamond, and it frightened me.

When the guards brought us to the playroom, Carlos Fernando was at the end of the room farthest from the enormous window, his back to the window and to us. He'd known we were coming, of course, but when the guards announced our arrival he didn't turn around, but called behind him, "It's okay—I'll be with them in a second."

The two guards left us.

He was gyrating and waving his hands in front of a large screen. On the screen, colorful spaceships flew in three-dimensional projection through the complicated maze of a city that had apparently been designed by Escher, with towers connected by bridges and buttresses. The viewpoint swooped around, chasing some of the spaceships, hiding from others. From time to time bursts of red dots shot forward, blowing the ships out of the sky with colorful explosions as Carlos Fernando shouted "Gotcha!" and "In your eye, dog!"

He was dancing with his whole body; apparently the game had some kind of full-body input. As far as I could tell, he seemed to have forgotten entirely that we were there.

I looked around.

Sitting on a padded platform no more than two meters from where we had entered, a lion looked back at me with golden eyes. He was bigger than I was. Next to him, with her head resting on her paws, lay a lioness, and she was watching me as well, her eyes half open. Her tail twitched once, twice. The lion's mane was so huge that it must have been shampooed and blow-dried.

He opened his mouth and yawned, then rolled onto his side, still watching me.

"They're harmless," Leah said. "Bad-Boy and Knickers. Pets."

Knickers—the female, I assumed—stretched over and grabbed the male lion by the neck. Then she put one paw on the back of his head and began to groom his fur with her tongue.

I was beginning to get a feel for just how different Carlos Fernando's life was from anything I knew.

On the walls closer to where Carlos Fernando was playing his game were several other screens. The one to my left looked like it had a homework problem partially worked out. Calculus, I noted. He was doing a chain-rule differentiation and had left it half-completed where he'd gotten stuck or bored. Next to it was a visualization of the structure of the atmosphere of Venus. Homework? I looked at it more carefully. If it was homework, he was much more interested in atmospheric science than in math; the map was covered with notes and had half a dozen open windows with details. I stepped forward to read it more closely.

The screen went black.

I turned around, and Carlos Fernando was there, a petulant expression on his

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face. “That’s my stuff,” he said. His voice squeaked on the word “stuff.” “I don’t want you looking at my stuff unless I ask you to, okay?”

He turned to Leah, and his expression changed to something I couldn’t quite read. He wanted to kick me out of his room, I thought, but didn’t want to make Leah angry; he wanted to keep her approval. “What’s he doing here?” he asked her.

She looked at me and raised her eyebrows.

I wish I knew myself, I thought, but I was in it far enough that I had better say something.

I walked over to the enormous window and looked out across the clouds. I could see another city, blue with distance, a toy balloon against the golden horizon.

“The environment of Venus is unique,” I said. “And to think, your ancestor Udo Nordwald put all this together.”

“Thanks,” he said. “I mean, I guess I mean thanks. I’m glad you like our city.”

“All of the cities,” I said. “It’s a staggering accomplishment. The genius it must have taken to envision it all, to put together the first floating city; to think of this planet as a haven, a place where millions can live. Or billions—the skies are nowhere near full. Someday even trillions, maybe.”

“Yeah,” he said. “Really something, I guess.”

“Spectacular.” I turned around and looked him directly in the eye. “So why do you want to destroy it?”

“What?” Leah said.

Carlos Fernando had his mouth open, and started to say something, but then closed his mouth again. He looked down, and then off to his left, and then to the right. He said, “I . . . I . . .” but then trailed off.

“I know your plan,” I said. “Your micromachines—they’ll convert the carbon dioxide to oxygen. And when the atmosphere changes, the cities will be grounded. They won’t be lighter than air, won’t be able to float anymore. You know that, don’t you? You want to do it deliberately.”

“He can’t,” Leah said, “it won’t work. The carbon would—” and then she broke off. “Diamond,” she said. “He’s going to turn the excess carbon into diamond.”

I reached over and picked up a piece of furniture, one of the foamed-diamond tables. It weighed almost nothing.

“Nanomachinery,” I said. “The molecular still you mentioned. You know, somebody once said that the problem with Venus isn’t that the surface is too hot. It’s just fine up here where the air’s as thin as Earth’s air. The problem is the surface is just too darn far below sea level.

“But for every ton of atmosphere your molecular machines convert to oxygen, you get a quarter ton of pure carbon. And the atmosphere is a thousand tons per square meter.

I turned to Carlos Fernando, who still hadn’t managed to say anything. His silence was as damning as any confession. “Your machines turn that carbon into diamond fibers and build upward from the surface. You’re going to build a new surface, aren’t you? A completely artificial surface. A platform up to the sweet spot, fifty kilometers above the old rock surface. And the air there will be breathable.”

At last Carlos found his voice. “Yeah,” he said. “Dad came up with the machines, but the idea of using them to build a shell around the whole planet—that idea was mine. It’s all mine. It’s pretty smart, isn’t it? Don’t you think it’s smart?”

“You can’t own the sky,” I said, “but you can own the land, can’t you? You will have built the land. And all the cities are going to crash. There won’t be any dissident cities, because there won’t be any cities. You’ll own it all. Everybody will have to come to you.”

“Yeah,” Carlos said. He was smiling now, a big goofy grin. “Sweet, isn’t it?” He

must have seen my expression, because he said, "Hey, come on. It's not like they were contributing. Those dissident cities are full of nothing but malcontents and pirates."

Leah's eyes were wide. He turned to her and said, "Hey, why shouldn't I? Give me one reason. They shouldn't even be here. It was all my ancestor's idea, the floating city, and they shoved in. They stole his idea, so now I'm going to shut them down. It'll be better my way."

He turned back to me. "Okay, look. You figured out my plan. That's fine, that's great, no problem, okay? You're smarter than I thought you were, I admit it. Now, just, I need you to promise not to tell anybody, okay?"

I shook my head.

"Oh, go away," he said. He turned back to Leah. "Dr. Hamakawa," he said. He got down on one knee, and, staring at the ground, said, "I want you to marry me. Please?"

Leah shook her head, but he was staring at the ground and couldn't see her. "I'm sorry, Carlos," she said. "I'm sorry."

He was just a kid, in a room surrounded by his toys, trying to talk the adults into seeing things the way he wanted them to. He finally looked up, his eyes filling with tears. "Please," he said. "I want you to. I'll give you anything. I'll give you whatever you want. You can have everything I own, all of it, the whole planet, everything."

"I'm sorry," Leah repeated. "I'm sorry."

He reached out and picked up something off the floor—a model of a spaceship—and looked at it, pretending to be suddenly interested in it. Then he put it carefully down on a table, picked up another one, and stood up, not looking at us. He sniffled and wiped his eyes with the back of his hand—apparently forgetting he had the ship model in it—trying to do it casually, as if we wouldn't have noticed that he had been crying.

"Okay," he said. "You can't leave, you know. This guy guessed too much. The plan only works if it's secret, so that the malcontents don't know it's coming, don't prepare for it. You have to stay here. I'll keep you here, I'll—I don't know. Something."

"No," I said. "It's dangerous for Leah here. Miranda already tried to hire pirates to shoot her down once, when she was out in the sky kayak. We have to leave."

Carlos looked up at me, and with sudden sarcasm said, "Miranda? You're joking. That was me who tipped off the pirates. Me. I thought they'd take you away and keep you. I wish they had."

And then he turned back to Leah. "Please? You'll be the richest person on Venus. You'll be the richest person in the solar system. I'll give it all to you. You'll be able to do anything you want."

"I'm sorry," Leah repeated. "It's a great offer. But no."

At the other end of the room, Carlos' bodyguards were quietly entering. He apparently had some way to summon them silently. The room was filling with them, and their guns were drawn, but not yet pointed.

I backed toward the window, and Leah came with me.

MOVING?

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The city had rotated a little, and sunlight was now slanting in through the window. I put my sun goggles on.

“Do you trust me?” I said quietly.

“Of course,” Leah said. “I always have.”

“Come here.”

LINK: READY blinked in the corner of my field of view.

I reached up, casually, and tapped on the side of the left lens. CQ MANTA, I tapped. CQ.

I put my other hand behind me and, hoping I could disguise what I was doing as long as I could, I pushed on the pane, feeling it flex out.

HERE, was the reply.

Push. Push. It was a matter of rhythm. When I found the resonant frequency of the pane, it felt right, it built up, like oscillating a rocking chair, like sex.

I reached out my left hand to hold Leah’s hand, and pumped harder on the glass with my right. I was putting my weight into it now, and the panel was bowing visibly with my motion. The window was starting to make a noise, an infrasonic thrum too deep to hear, but you could feel it. On each swing, the pane of the window bowed further outward.

“What are you doing?” Carlos shouted. “Are you crazy?”

The bottom bowed out, and the edge of the pane separated from its frame.

There was a smell of acid and sulfur. The bodyguards ran toward us, but—as I’d hoped—they were hesitant to use their guns, worried that the damaged panel might blow completely out.

The window screeched and jerked, but held, fixed in place by the other joints. The way it was stuck in place left a narrow vertical slit between the window and its frame. I pulled Leah close to me and shoved myself backward, against the glass, sliding along against the bowed pane, pushing it outward to widen the opening as much as I could.

As I fell, I kissed her lightly on the edge of the neck.

She could have broken my grip, could have torn herself free.

But she didn’t.

“Hold your breath and squeeze your eyes shut,” I whispered, as we fell through the opening and into the void, and then with my last breath of air, I said, “I love you.”

She said nothing in return. She was always practical, and knew enough not to try to talk when her next breath would be acid. “I love you too,” I imagined her saying.

With my free hand, I tapped, MANTA

NEED PICK-UP. FAST.

And we fell.

“It wasn’t about sex at all,” I said. “That’s what I failed to understand.” We were in the manta, covered with slime, but basically unhurt. The pirates had accomplished their miracle, snatched us out of mid-air. We had information they needed, and in exchange they would give us a ride off the planet, back where we belonged, back to the cool and the dark and the emptiness between planets. “It was all about finance. Keeping control of assets.”

“Sure it’s about sex,” Leah said. “Don’t fool yourself. We’re humans. It’s always about sex. Always. You think that’s not a temptation? Molding a kid into just exactly what you want? Of course it’s sex. Sex and control. Money? That’s just the excuse they tell themselves.”

“But you weren’t tempted,” I said.

She looked at me long and hard. “Of course I was.” She sighed, and her expression was once again distant, unreadable. “More than you’ll ever know.” ○