

Birthing Pool

by Nancy Kress

Mommy said they had been here too long.

How long was too long? The question didn't make much sense to Rilla. She had been on Genji her whole life. Did that mean her life had been too long? She was not quite ten standard.

"Less than a year till we go home to Earth," Mommy said, dumping mush from the food processor into a bowl and reaching for her precious spice safe. She said this often, as if she didn't want Rilla to forget it.

"I am home," Rilla said, but Mommy's QED chimed softly and in a flash she had left the food machine and run to the console in the corner of the field dome, where new figures and pictures scrolled across the screen.

"I'm only the fourth human born on Genji," Rilla said loudly, in case Mommy could be distracted from the QED. "Rita Byrne, Seigi Minoru, Cade Anson, and me."

But all Mommy said was. "Call your father, Rilla! He's down at the village! Tell him to come see this!"

Nobody listened to a ten-year-old. Nobody.

Still, it was all right to be sent down to the village. Tmafekitch might even be there. Rilla put on her suit, checked the tanks and translator and safety devices, cycled through the air lock, and started across the plateau toward the loose collection of Ihardizu farms and pools and greens.

She found her father taking water samples from a birthing pool with two Ihardizu grown-ups. Even Rilla knew that her father, or any other scientist on Genji, couldn't possibly need any more water samples from any more birthing pools. For nearly thirty years teams had collected thousands of samples from pools in Nighland, Southland, even in Farland, on the other side of the world where it was always moonless and Rilla had never been. The QED had analyzed all the sample data and then analyzed it again and again, and not even Daddy could think there was anything left to learn from the algae growing in an empty birthing pool. No, Daddy just wanted a way to talk to the two Ihardizu grown-ups, one of whom had only just arrived in the village and mated with Tshifel, an unmarried male, a little while ago. Daddy always liked to talk to females who had just finished their mating journey, especially if they had traveled a long way to find a mate.

Rilla sometimes considered that the only mate her age in the entire Murasaki System was Seigi Minoru. He was on Chujo with his parents. That would be a long mating journey.

"Rilla;" Daddy said. "What are you doing here?"

"Mommy says to come right away. There's something interesting on the QED."

It was hard to see Daddy's expression through his helmet, but it seemed to Rilla that he didn't really want to leave. Why not? Nothing interesting could be going on here. But then Daddy said his good-byes—without the translator, as what he and Mommy called a gesture of courtesy, and Rilla couldn't help noticing that his accent was terrible—and reached for her hand.

"Come on, Ril

But Rilla caught sight of Tmafekitch, coming around the corner of the Carnot temple. "I'll stay here, Daddy. There's Tmafekitch"

“Be careful,— he said automatically, and hurried toward the dome.

“Tmafekitch!” Rilla yelled. Tmafekitch saw her and ambled over. “What were you doing?”

“Listening to the talker in the Carnot temple,” her friend said. She spoke a combination of English, Ihrdizu, and the private language she and Rilla had spoken to each other all Rilla’s life. All Tmafekitch’s, too. With Tmafekitch, Rilla hardly used her translator at all.

“There was a talker in the temple and you didn’t come tell me?” Rilla said, outraged. “What story was she talking?”

“Szikwshawmi.”

“That’s the best one!”

In Ihrdizu, this came out “the best one to eat,” since stories for the Ihrdizu were listened to with devouring attention. Daddy had explained this to Rilla, and ordinarily she got the giggles every time she thought of stories coming out of Mommy’s food machine. But this time she was too disappointed. The story of Szikwshawmi was great, with angels appearing out of the sky to strike female Ihrdizu and give them greater strength to be warriors. Rilla and Tmafekitch had acted it out lots of times, changing parts so that each got to pounce out of the sky and each got to be given great strength and fierceness. And it was even better told inside the Camot temple, which a man named Robert Carnot had built for the Ihrdizu to be religious in a long time ago, because if the talker sat in the right place there were thrilling echoes.

“Come, do not die on the starside,” Tmafekitch said, which meant that Rilla was not supposed to be so negative. “I have something to tell you.”

“What?” Rilla said sulkily. “Look at that she over there—the new one—why is she watching us so hard?”

“She has never seen a human until she came here.—

So that was why Daddy had been so eager to talk to the new female. She came from a village where no scientists had been. She must have had a very long mating journey. Mommy and Daddy’s field camp, after all, wasn’t on Farland. It was only an hour’s fly from Okuma Base, where there were plenty of humans.

“I Tmafekitch said, and walked away, flipping her tail. Tmafekitch was angry; Rilla realized it was because she hadn’t asked what the something was that Tma-fekitch had offered to tell her—what Mommy would call “a serious breach of manners.”

“I am low,” she said hastily to Tmafekitch’s retreating back. “Cut off my tail. May I never rise to Chujo.”

Tnaafekitch turned around and nodded, accepting the apology. She never held a grudge. Unlike me, thought Rilla, who was currently holding several grudges against several people. But not against Tmafekitch. Never against Tmafekitch.

“I have something to tell you,” Tmafekitch said, just as if the little anger hadn’t happened.

“Oh, what?”

“Last dark I had a heat flush. The first.”

Rilla stared at the Ihrdizu. A heat flush! “But that means you won’t be a little-she any more! You’ll be a gniwn-up! And you’ll go off on a mating journey!”

“Yes. So,” Tmafekitch said.

“And leave me here!”

“You will soon go off on your own mating journey,” Tmafekitch said, but Rilla heard in her clicks and words and grunts and pitch—the grunts that she and Tmafekitch had invented together!—that Tmafekitch was sad about the parting, too. Well, so what! Sadness didn’t help! Tmafekitch would go off to find some male, and it would have to be pretty far off because look how far the new she;had had to come to find anybody to—mate with, and then Rilla would never see Tmafelcitch again. Never. And in less than a year Mommy and Daddy would take her back to Earth that they were so Chujo about, and Rilla would have nothing left. Nothing. Nothing.

She turned and left Tmafekitch standing there without even, a good-bye courtesy, running away from the village, away from the dome, her strong Genji-bred legs standing against the gravity better than her parents ever could, not even the bulky suit much slowing her flight under the thick, gray sky.

“Let me see it again,” Bruce Johnson said.

His wife Jane hit Replay, and the QED in the corner of the small dome, half research station and half home, started the incredible sequence of data again.

The QED—Quantum-Effect Device—was on receiving mode, which meant that at the moment it was doing no thinking of its own but merely acting as a terminal to receive data from the main computer at Okuma Base, atop Mount Korabachi. The QED in the field dome was capable of thinking, very smart thinking, due to fuzzy programs that could make reasonable deductions from incomplete evidence. Bruce Johnson, xenobiologist, had thought often over the last ten years that this was a good thing because on Genji all you got was incomplete knowledge. This didn’t bother him. A huge ex-Texan who found it hard to sit still, either physically or mentally, he was pleased rather than not that Murasaki System still held so many facts that refused to fit together. It made for interesting theories. And now, looking at the data coming in on receiver mode, here was room for one more.

The carpet whales, those huge sluggish maybe-sentient himatids that spent their unguessably long lives in the polar waters of Genji’s starside, were all swimming toward moonside.

All of them.

They were doing it very, very slowly, at even less than the two knots that were characteristic of their budding journeys. Measurement of their speed and direction came from Malachiel Holden, the half-crazy hermit researcher who fanatically studied the carpet whales from a research outpost on Farland. Well, not “hermit” any more, not since he had married Rita Byrne, the Genji-born girl young enough to be his daughter. That had fascinated and appalled Jane, who had taken to giving worried glances at Rilla and then doubled her insistence that Bruce and she and Rilla secure places on the ship arriving from and returning to Earth next year. Bruce didn’t much care that Rita Byrne had married Malachiel Holden. People didn’t interest him as much as Ihardizu or himatids.

Except for Jane and Rilla, of course.

“Look at that,” he said to Jane. “All of those damn carpet whales. All moving toward moonside, where they never go.”

“Holden has done a beautiful job of tracking their movements. He must spend every minute of every day either at sea or running QED projections.”

“Not practical,” Bruce said. “But he’s good, all right. Cautious, though. This is all data and images—he’s not even offering a tentative hypothesis.”

“Just an expense request,” Jane said dryly. The allocation of resources to carpet-whale study had always been a sore point among the researchers of the Ihrdizu: the Ihrclizu at least cooperated with being researched. In their own eccentric way. “He wants a station set up at the probable point of convergence of all the whales. As soon as he can ‘figure out what it is.’”

“Well, of, course,” Bruce said. Jane glanced at her husband. Abruptly she moved into his line of sight, not directly between him and the screen but clearly in his peripheral vision.

“Truce—we’re leaving in, less than a year right? We are leaving?”

“Will you look at that,” he said softly. “Just look at that.”

At Olcuma Base, Jordan Dane, First Conciliator, stared at another set of data, this set from the moon.

“Are they sure of this?” he asked his scientific liaison, Suzy Tatsumi, a middle-aged woman of soft-spoken tact and penetrating intelligence.

“Yes, First Conciliator. They are sure.”

He glanced at her, half smiling. How did she get so many delicate shades of meaning into six words? Verification (“The data is reliable”), rebuke (“They would not send it if they were not sure”), loyalty (“They on Chujo are my countrymen, after all, should you be questioning them to me?”), and conciliation (“I know it is just a Western reflex, to question data integrity, to question even superior researchers”). How did Tatsumi-san do it? She should be First Conciliator.

Which was a damn silly title anyway. It sounded as if he were followed by a whole line of other conciliators—second, third—like a tiered judiciary system. But there was only Dane, at thirty-five standard years one of the youngest adults on Genji, chosen by the seven different human groups in the Murasaki System to coordinate forums at which their differences could be conciliated. Six of those groups maintained clusters of headquarter domes at Okuma Base, where most days you could breathe most of the air: three domes for the Japanese expedition that had seniority on Genji. Three domes for the American scientists that had arrived twenty-five years ago. Four domes for the British-led multinational expedition five years after that. And three smaller domes belonging to smaller groups.

Among the domes, power packs hummed softly. Okuma Base had also, for the last six years, been the nexus of the information-sharing network Dane had set up. The QED in the British dome acted as a clearinghouse, not because the British equipment was particularly distinguished but because the Japanese and the Southwest American teams both found it easier to deal with the British than with each other.

That was also probably the reason Jordan Dane had been elected First Conciliator. It was a vital job, he had come to see, even though it carried no actual power whatsoever and he could not order anyone to do anything. But the post was nonetheless necessary. First, because the seven groups were so diverse—three English-speaking scientific expeditions; the large group of Japanese scientists; the pathetic remnants of the proselytizing Carnot missionaries, mostly wiped out by plague; one even weirder religious group called the Mission of Fruitful Life whose stated aim was to fill the entire galaxy with humans, however long it took; and one Spacer group who denied being colonists—there weren’t enough human-usable resources on Genji to self-support colonists—but didn’t seem to be anything else. They were artists, they said, but they neither wrote nor painted nor performed. They described themselves as “time artists,” and from what Dane could see, they sat and contemplated time at someone’s incredible expense.

The second reason a First Conciliator was needed was the twenty-year-old massacre of Robert Carrot, human, and Aaron Kammer, God-knows-what, by Ihdizu fisherfolk, who had in turn been massacring whales. The incident had left anger, confusion, and myths. The anger belonged to the Japanese, who had seen the two Anglo factions as disrupting Genji culture to gain power and glory. The confusion belonged to Edward Philby, the self-appointed first First Conciliator, who had witnessed (caused?) the massacre and who had never been the same afterward. The myths belonged to the Ihdizu. All sorts of myths, none of them particularly influential but all of them tenacious: that the temples Robert Camot left behind were blessed by angels from the sky. That the humans could disappear into the sea and become carpet whales. That Aaron Kammer was not really dead but had been glimpsed in Farland.

This last, oddly, was what had driven that super-rationalist Edward Philby around the bend.

The odd thing, though, was that Philby had not left Genji. Twenty years later and he was still here, sitting with the time artists, contemplating whatever it was that time artists contemplated.

Tatsumi never spoke of him. Jordan Dane never asked her why, sensing that she would not answer, that there were things moving below the surface of her mind about Philby. He could sense things like, that. It was why he had lasted as First Conciliator. And Suzy Tatsumi was naturally reticent, formal. He liked that in her: it was restful. Perhaps it was also why she had lasted as liaison to diverse sets of scientists.

He said to her now, “Who is still here who remembers that first time the snug mats formed on Chujo? Who was an eyewitness to the bioloons?” He was careful not to say the “so-called bioloons,” as the non-Japanese scientists did. In nearly thirty years, no one had ever seen bioloons form again.

Tatsumi said, “Most of them returned on the second Japanese ship. But there is here a woman, Miyuki Kaneko, who witnessed it all.”

“Here? On Genji?”

“No. On Chujo.”

Dane nodded. He stared a moment longer at the transmitter screen, which showed a valley floor on bleak Chujo writhing as if alive. Which it was, with the bioengineered microorganisms that, together, made a mysterious sort of cloth that had already done so many things on Murasaki’s worlds: Cure. Transform. Kill.

“I think we should call a general forum,” Dane said. “Representatives from each group, two from those with teams on both Genji and Chujo. Transmitter linkup only for those who absolutely can’t spare the personnel from either the snug watch or the carpet-whale watch. Everyone else welcome, to the dome’s capacity. Call it a priority-two meeting: information sharing with possible vote on significant action.”

Tatsumi nodded. She didn’t look surprised. “For when shall I call the meeting, First Conciliator?”

Dane stared at the snug writhing over the floor of Chujo. The screen switched to data on the nomadic Chupchups, traveling toward the spot. even as the carpet whales traveled toward... something or other.

“For now,” he said. “Better yet, for yesterday.”

Jane Johnson stood at the edge of the plateau that held the Johnson field dome and the Ihdizu village, and bitterly watched the water below rising up the plateau wall.

Water on Genji was always doing some damn thing: rising in tides, falling, in tides, whipping into vicious sea storms, stagnating in birth pools until the smell was enough to drive you crazy, even, according to the best research theory, wiping out entire ecosystems on a systematic basis, like endless punishments of an

entire race for some sin no one remembered.

She had been so enthusiastic about ecosystem research during her first year on Genji. Everything had seemed so exciting, after the confinement of the ship. She was a botanist; there had been so many new plants. New people. New possibilities. Genji had struck her as ugly, but next to the rest of it, that had hardly mattered.

How did you account for a ten-year mistake?

It had started with her pregnancy, an astonishment that had resulted from a batch of defective pregnancy blockers among the supplies. Well, with that many pharmaceuticals aboard that long, there were bound to be some defects. The surprising thing had been her fight against an abortion; She had wanted the baby fiercely, unthinkingly, and eventually Bruce had given up arguing. It wasn't as if she had been the first: Rita Byrne was already fifteen years old and thriving. On Chujo, little Seigi Minoru was almost two.

She didn't know how it had been for those mothers, but for Jane, Rilla's birth had changed everything. With her baby in her arms Jane had come to look at Genji as the hell it really was. Thick, heavy planet, dragging on her body, on her legs, on her very arms as she held her baby. Thick, soupy gray air, pressing down on them wherever they went, not even safe to breathe. Ultraviolet radiation to sear an infant's unprotected skin, swooping pseudobirds strong enough in their perverse gravity to carry away an Ihrdizu child. Or a human one.

Rilla changed everythingg. Under the huge dome at Okuma Base while Bruce went into the field to work, or in the research camps he insisted she bring Rilla to when the little girl was older, Rilla was a constant presence in Jane's heart, pressing on her, weighing on her. Rilla deserved better. Rilla deserved a planet where she could run outside unfettered in the sunlight, dive into clear blue water, play with little girls instead of the little-she's of the friendly Ihrdizu, who no matter how friendly could never really be friends. That was the first lesson of xenobiology: The alien is not human. Not your own behaviors, not your own motivations, not your own kind.

No woman should ever have a baby off-planet.

The tide below the plateau had almost peaked. Jane looked at the swirling water beneath her. Then she closed her eyes and arched her back slightly, not easy to do in her bulky suit. But she wasn't in her suit. She stood on the edge of a red cliff at Amilcar, and below her the Mediterranean crashed, blue as the sky. Her back was arched against the wind, which blew her hair back from her face and brought to her the scent of wild jasmine. She sniffed deeply, eyes closed, only opening them because she was so hungry for the exquisite sight of the dusty leaves of olive trees lacy against the bright, clear sky.

"I'm not going!" Rilla cried, aghast. "How can you make me go?"

Her father looked at her, not especially patiently. Behind them, Mommy was doing something to the QED, and Rilla knew why, too: so that Mommy wouldn't have to look at Rilla while Daddy told her she had to go with them to the conference at Okuma Base. If Mommy had said she had to go, Rilla could always have run to Daddy; Daddy liked her to be such friends with Tmafekitch. But Daddy was the one telling her. There was no escape.

"I won't go! run away with Tmafekitch on her mating journey!"

Mommy turned around sharply, her face white. But Daddy only said, in a tone he probably thought was soothing, "Now, Rilla, you know you can't do that. How could you get food, or air tanks? And besides, Tmafekitch wouldn't take you. She has an important job to do, finding a mate so she can establish a homestead and not be a little-she anymore. She can't fit you into that job."

This was true. Rilla had already asked Tmafekitch. And Tmafeldtch, waving, her snorkel and clicking her feet in a way that meant she was embarrassed, had said no. The flush was all over her skin, that hateful sex flush that meant soon Rilla would never see her friend again.

“But by the time we get back from Okuma Base, Tmafekitch might be already gone!”

“She might not,” Daddy said. But he didn’t look at her when he said it.

Rilla burst into tears, stamped both her feet, and fled behind her partition.

Jane frowned. “When did she start doing that?”

“Doing what?” Bruce said. He still squatted on the floor, bringing himself down to Rilla’s height. His love for his daughter, he often thought, should not be such a painful thing.

“Stamping both her feet like that to show she’s angry. In that Ihdizu pattern.”

“I don’t know.”

“She never smiles,” Jane said.

“Smiles are rude in Ihdizu. You know that. The tongue is a sex organ.”

“She’s not Ihdizu!”

Bruce rose. “Lay off, Jane, will you?”

“She’s not Ihdizu.”

Within an hour the three of them were in the flyer, bound for Olcuma Base.

Dane looked around the crowded room. Nobody looked back; they were all watching the monitor showing carpet whales migrating on Genji, snug mats growing on Chujo, or both.

The scientists sat in rows on inflatable benches, reasonably orderly even under stress. Hauro Maguto represented the Japanese scientists on Genji, Miyuki Kaneko those on Chujo. Miyuki had answered eager questions almost the moment her shuttle had landed, but she hadn’t been able to add much. The data coming in on transmission was fresher than her last firsthand information from Chujo. She claimed, Dane remembered, to be an eyewitness to the bioloons these snug mats had supposedly become twenty-eight years ago. Her face, as she stared at the visuals from the Chujo upland valleys, showed nothing.

Six designated representatives from the three other scientific expeditions also occupied inflatable benches, talking quietly among themselves. Other people crowded in the back, among them, Dane saw, the Johnsons. He had received three requests for berth space aboard the Light of Allah, due to arrive and depart Genji in eight months, from Jane Johnson. None had been cotransmitted with her husband. A bad sign. The child, Rilla, was not at the meeting; Jane had probably left her to play with the only other child on Genji, six-year-old Cade Anson.

Between the inflatable benches and the standing scientists sat two members of the Quantists: two of the nineteen that existed, including Cade Anson. Dane couldn’t remember their names. They were muttering something. Prayers?

Well away from the Quantists, a woman from the Mission of Fruitful Life sat on a folding stool. She was obviously pregnant. “Go forth and multiply” meant, to the Fruity Livers, just that; they were fulfilling their

mission to fill the whole galaxy with humanity, starting with Genji. What was with these people, to send a pregnant woman to do anything in this gravity? But the woman herself looked calm enough, if very uncomfortable.

No one at all had come from the small weird collective of the time artists.

“I think we should get started,” Dane said genially. Faces turned toward him, first reluctantly and then with determination.

“We’ve all looked at the data and the images,” Dane said. “I’d like to organize the meeting in three parts, if that’s all right with you all.” He smiled. Conciliatorily. “First, I’d like a brief summary of all the questions raised by each group by the events of the last few days. Second, I’d like to ask for possible interpretations of those events or answers to those questions, by way of sharing speculation and information. Finally, we’ll determine together what needs to be done. If anything.”

People nodded. Before Dane could speak again, one of the Quantists spoke. “Why isn’t there an Ihrdizu at this meeting?”

Dane said, “Well, I ... it didn’t seem appropriate. We’re sharing human perspectives, and we have researchers with us well qualified to share Ihrdizu ideas—”

“Not the ideas of those Ihrdizu who already believe in the Ascendancy!”

“Sit down!” someone else called. “It’s not your turn!”

“You can speak for your culture-contaminated tame Ihrdizu,” someone else said, with contempt. Dane saw the nonconfrontational Japanese wince,

Dane said, “How many people vote to invite an Ihrdizu representative to this meeting?” Only the Quantists raised their hands. “All right, let’s start with the questions we don’t know answers to. Dr. Kaneko?”

Miyuki Kaneko rose heavily. Twenty years on Chujo’s lighter gravity, Dane thought. He could picture her younger, more lithe, although her present appearance—small, serene, not yet old when the average life span stretched to nearly a century—pleased him as well. Nor had he overestimated her capacity for organized thought.

She said, “One: We do not know what has triggered the snug mats to start re-forming in Chujo’s highland valleys, after they have not done so for twenty-eight years. Two: We do not know whether this snug-mat formation is larger than the ones twenty-five years ago, because then no measurements were made. Three: We do not know what is in the ‘books’ in the library cairns, since for twenty-eight years the Chupchups have not let us examine a single one. Four. We, still do not know why the Chupchups abandoned their elaborate and technologically advanced cities to live as nomads, or when, or why they seem to have no interest in the cities now. Nor in the bioengineering that, to judge from what they did to Aaron Kammer, they once knew how to perform.”

There was a moment of silence; to those newer to Genji or Chujo, Aaron Kammer’s weird history was almost as unsubstantiated as the bioloons.

A Quantist said derisively, “You sure haven’t learned much in, nearly thirty years on the moon!”

Dane said swiftly, “That is not a useful comment. Please remember that this meeting is being held on Lorentz Expedition property and that anyone who disrupts it can be evicted.”

Miyuki said, just as if the comment had been a reasoned and constructive criticism, “It is difficult to study a people who will not acknowledge your existence, yes. We have been much distressed.”

Dane looked at her admiringly. She, too, might have been a First Conciliator.

“Five,” Miyuki said, and now her voice did change, taking on a slight hesitation. “We still do not know if the carvings in the abandoned cities have any meaning. Or ever did have.”

Dane said, “Describe one for us, just to fill in those people who have not been to Chujo.” This covered much of the room.

Miyuki said, in that same hesitant voice—the carving had some personal meaning for her, Dane guessed, that she herself was having difficulty defining—“There is one of a tigerlike creature whose tail curves around and around, forming a Chupchup face, before it comes into the mouth of the tiger to be consumed. In the background are bioloons. This is how we know the bioloon phenomenon did not happen for the first time twenty-eight years ago.”

Abruptly, she sat down. Dane said, “Next?”

Kara Linden stood, a brisk, no-nonsense woman who was chief of the Lorentz Expedition. “There are fewer things we don’t know about the Ihrdizu than about the Chujoans, of course, because the Ihrdizu are so cooperative. But they are also factual, practical, and much more hardwired to their basic biological patterns than are humans. This means they don’t question their own lives very deeply, and even their ‘religions,’ if I can use that word, are usually taken very casually. Religion seems to be mostly valued as a source of enjoyable stories and festivals than anything else, and even the Carnot temples”—she glanced contemptuously at the Quantists—currently are mostly used as community recreation huts, with amiable religious frosting. Given all this, the main thing we don’t know about the Ihrdizu is why they continue to regard Chujo with some reverence—as much reverence, I may add, as such a practical and no-nonsense people seem capable of.”

Dane hid a grin; it was obvious Dr. Linden approved of this trait in the Ihrdizu. She might have made a good Ihrdizu herself.

She finished with, “The Ihrdizu say the Masters live on Chujo, but they are unable to define what these ‘masters’ are masters of. They say they will go to Chujo one day, but questioning them about whether this means they will go there after death produces only bewilderment. They have no afterlife myth. We have offered repeatedly to take a few of them to Chujo in the shuttle, but they always decline, with what seems a total lack of not only interest but comprehension. They are not stupid, but on the subject of Chujo they are... are opaque, and I have come to the conclusion that they are opaque to themselves as well. The most you can get out of an Ihrdizu, even a highly intelligent Ihrdizu in a technological capacity in one of the largest villages, is ‘Oh, Chujo ... The Masters are there. In time, we will go, too.’ Then they change the subject.”

“All right,” Dane said, “the list of things we don’t know is growing nicely.” A few people laughed. “Who will speak to the carpet-whale migration?”

After a moment a young man stood, younger even than Dane. “I can’t really say ... I mean, Dr. Holden and his wife report to me, but not on a regular basis.—The young man blushed. Dane guessed that Dr. Holden reported to this timid person only because no one else would take the job of supervising the irascible and caustic researcher.

“But, anyway,” the young man ventured, “what we don’t know about the carpet whales is why they’re suddenly migrating to moonside, where exactly they’re going, when they’ll get there, what triggered the

migration, or what they'll do when they arrive.”

That about covered it, Dane thought. “Now, does all our ignorance constitute a crisis of any sort? Several people have talked to me”—besieged me, he wanted to say but didn't—“about the reallocation of research territories, given that current events have made some areas suddenly much more desirable.” Everybody wanted to be near where the action was, even if nobody knew what the action meant. “Now, we had all agreed—voluntarily—to spread out far enough not to contaminate each others' sphere of culture.” This was not strictly true; the Quantists went around contaminating everywhere they could, but nineteen people with limited resources couldn't influence very much. If the Ihdizu had taken up Robert Carnot's Church of the Ascendancy, that might have been a different thing, but as Kara Linden pointed out, for the most part they had not.

Dane drew a deep breath: Here goes. “So the question before us is whether or not we want to reallocate research spheres, on what basis, and to whom, given the difference in each party's equipment and interests.”

Immediately a dozen voices clamored for the floor. Several people rose to their feet, with varying degrees of clumsiness. No one could be heard. Dane simply waited: if he recognized no one, eventually they would quiet down and restore order. Unless, of course, there was a fistfight, and he didn't think the scientists would do that. The Quantists might—twenty years of frustration, starting with plague and massacre, was not exactly calming—but the scientists, eager to claim research rights, ignored the religious groups. The Fruity Livers, as usual, simply sat, multiplying.

Bruce Johnson yelled, “Ihdizu genetic patterns... “

Somebody else called, “—informally agreed that after fifteen months ... “

“—carpet whales—”

“—Chujo—”

The door at the back of the room slammed open.

Everybody turned. A woman strode in, brisk even in the heavy gravity, carrying a holocorder. Dane had never seen her before. Then,—with a shock, he realized that he had: a year ago, at her wedding. Rita Byrne Holden. Her skin was burnt and mottled—the ultraviolet radiation she must be permitting herself to take in the name of open-sea research! Born on Genji, she had always had a squat, compact body heavily muscled, as human anatomy shaped itself to Genji gravitational imperatives. Now, however, her muscles in the brief indoor tunic—she and Holden must live nearly naked, when they were not in suits—bulged like a caricature of a sumo wrestler, although without the fat. She was impressive but oddly deformed. Dane would not want to have to tangle with her in a fair fight.

Jane Johnson looked at her with something very like terror.

“Listen,” Rita said, without ritual pleasantries, “I've got something to show you. Holden sent me because he wanted to be sure you all saw this without any screwups or evasions.”

The rabbit young man whom Holden was supposed to “report to” opened his mouth, then closed it again.

Rita plugged the holocorder into the QED, blanked the pictures on the two-dimensional screen, and turned the device on. For a moment Dane wondered how Holden, the fringe researcher, had wangled a rare and expensive holocorder, but then he forgot that, and everything else, in the three-dimensional

hologram that sprang to life in the four-foot square of alloy floor in front of the QED.

Carpet whales. Twelve, sixteen, twenty of them, already arrived at the strait between Nighland and Southland, their dark hugeness reduced to absurd miniaturization by the holo. But not so miniature that he could not see that one whale had rolled over. Its ventral side, grayish white, was exposed to the sky. Above it, clearly shimmering in ribbons of red and green light, floated an enormous representation of a twisted human figure covered in snug that could only be Aaron Kammer.

Rilla looked out the window of the flyer as it skimmed over the surface of Genji toward their dome. Hurry, hurry! Oh, what if Tmafekitch had already left on her mating journey and Rilla never even got to say good-bye? Daddy had promised they would get back before Tmafekitch left, but then the stupid meeting had gone hours and hours past what it was supposed to, all because of Rita Byrne. People shouting, arguing, talking, just sitting there. A whole day, almost, and all the while Tmafekitch may be setting out to look for a stupid mate and leave Rilla behind forever.

And her parents were still at it, talking even while Rilla's throat hurt so much it might just break.

"Not light," Daddy said, for the hundredth time. "Exudates, gases and water, reflected and refracted through thousands of precisely placed bits of shiny minerals embedded in the flesh and acting as mirrors. All to produce a sort of hobo of Aaron Kammer. Of Aaron Kammer! It's not possible."

"We saw it," Mommy said. She sounded scared. "It was photographable. Not a drug-induced illusion or hypnosis."

"No wonder Rita Byrne brought the pictures herself. No one would have believed her."

"A lot still didn't."

"Not even the QED could specify an exact moving arrangement of mineral embedding and exudate control to produce an illusion like that," Daddy said. "Well, all right, maybe the QED could, but ... it's not possible. It doesn't make sense. How could it happen?" Unlike Mommy, Daddy didn't look scared. His eyes were bright, and his big rough hands moved restlessly over the flyer controls.

Mommy didn't answer. Rilla leaned forward, to get there sooner, or make the flyer go faster, or something. Hurry! Hurry!

"It's not possible," Daddy said.

"Will you stop saying that?" Mommy said sharply. "Obviously it is possible. The himatids did it. Genetic engineering, all that time they've been growing out there, multiplying, reaching some kind of critical mass to do whatever it is they do out there for millennia... it's obviously possible, because it exists!"

"Don't shout, Jane."

"I'll shout if I want to!"

Daddy said, "You used to be a researcher. Intellectual questions used to engage you."

"I used to be a lot of things," Mommy said, and turned her back to watch their dome approach portside.

Rilla sealed her helmet. The moment she was out of the flyer, she was running, ignoring Mommy screaming behind her. "Rilla! You didn't check your tanks or your safety devices!" Ignoring Daddy, who started to run after her, then stopped. He couldn't catch her. Not in this gravity she had been born in and he had not. I was the fourth one born on Genji, she chanted to herself desperately, Rita Byrne and Seigi

Minoru and Cade Anson and...

The chanting didn't help. She reached the village, and there stood Tykifizz, Tmafekitch's daddy, and Rilla knew just from the expression on the small male's four-eyed, snorkeled head that Tmafekitch had already gone.

Rilla didn't even hesitate. She had filled her tanks, packed her supplies, done her safety check before they left Okuma Base, while Mommy and Daddy had been talking and talking and talking about carpet whales. What were carpet whales compared to Tmafekitch, her friend? Just nothing. She didn't have the translator because that might have made her parents suspicious, but probably Tmafekitch's daddy could understand her well enough without the translator. And, of course, once she found Tmafekitch, she wouldn't need any stupid old translator.

Speaking very slowly and putting in as many Ihrdizu sounds as she could—only it was hard to know which ones were really Ihrdizu and which ones were hers and Tmafekitch's!—she said to Tykifizz, “Which path did she take? Where does she search? Through whose food pond does she mate?”

She asked all the questions she could think of, keeping one eye out for Mommy or Daddy. But they didn't come. Still fighting? Or did they just think she was sulking and would be back?

She would, of course. She knew that, no matter how much of a baby they thought she was. She knew she couldn't really live off the Genji land, and she knew Tmafekitch couldn't really take Rilla with her. But Rilla could say good-bye. They weren't going to cheat her out of that.

Once she had all the information Tykifizz could give her, she started off after her friend, her lost soul mate, to say good-bye.

Jordan Dane was not a scientist. He had been chosen for First Conciliator precisely because he was not and thus was assumed not to favor any one scientific discipline over another. He had come to Murasaki System as librarian, highly trained at storing, cross-referencing, retrieving, and preserving other people's science, a QED specialist considerably less valuable at what he did than the QED itself. Looking at the screen displaying close-up transmissions of Chujoan Chupchups camped in rings around writhing vast mats of snug, Dane found himself wishing—for the first time—that he was a scientist.

Tatsumi was watching him with her quiet eyes. What she said surprised him.

“Where were you born, First Conciliator?”

“I'm a Spacer, Tatsumi-san. I thought you knew that.”

She bowed slightly, apology for the inquisitiveness. “From what place?”

He smiled at her. “A habitat. It no longer exists. An accident. They were attaching antimatter thrusters to the hollowed-out asteroid, preparing to move it to a better location. The whole thing blew.—

“Ah. Clayton's World.”

He bowed in return, a playful mimicry. So the details had reached even Murasaki. He didn't like talking about it. But one more sentence seemed necessary: expiation. “I was away at graduate school on Earth. Harvard.”

“So you are an exile.” she said, so neutrally he knew he did not have to say any more. She would not probe. Together they watched the Chupchups camped around the snug vats, until Suzy Tatsumi said in her formal, pretty voice, “I think, First Conciliator, that someone should go talk to Mr. Philby.”

She was shocked at how much Philby had changed.

Tatsumi looked in her mirror every morning; although the changes there were gradual, she did not delude herself that the lined face and smooth, gray-flecked hair belonged to the same young woman who had sobbed on the beach as the Ihrdizu stoned to death Robert Carnot and Aaron Kammer. She was slower, thicker, in her prime but past her bloom. Yet she was still the same person, recognizable in that mirror. Edward Philby was not recognizable. For a long heart-stopping moment, he did not look human.

But that was illusion. Of bulk: the once sleek and well-fed body weighed no more than sixty kilos. Of hair: Philby had none left. Most of all, of skin: Philby's very brown face, neck, arms, and bare chest were covered with melanomas, as if he had sat deliberately in the ultraviolet light for a very long time. As perhaps he had. The cancers, Tatsumi could see, were killing him.

She tried to hide her shock as she approached him. He sat on a bench in front of a standard portable dome among five other domes at the time artists' colony. He wore pants, boots, and a breathing filter. Tatsumi, who wore a full suit, thought that at this air pressure, not sea level but not mountaintop either, he must be very uncomfortable. He gave no sign of it.

"Mr. Philby," she said formally. "It is Dr. Tatsumi."

She wasn't sure what she expected. Slowly, slowly Philby rose, nodded, and led the way into the dome.

Tatsumi removed her helmet. (Was it completely safe? He looked crazed. But she stood between him and the air lock, and it was painfully obvious by how much she was the stronger.) She bowed slightly.

"I have come to see you, after all this time, to ask you once again about something. Alas, it is a painful topic: that last day on the beach, at the Ihrdizu fishing association, when Robert Carrot and Aaron Kammer died."

—In time, everything must happen," Philby said.

She nodded politely. "So say many Oriental philosophers."

"And you think I am merely echoing them. But I mean something much subtler, something derived from physics," Philby said. She remembered that he had debated philosophy for—literally—years with Robert Carrot, through ship-to-ship link. She heard, too, what she had missed in his first, five-word utterance: the cancer had invaded his throat.

"What is it that you do mean?" she said still polite.

"For everything there is an equal and opposite inaction. That is basic physics. It is also cosmic design. For everything, if one waits and witnesses with enough patience, there is a corrective swing in events. Like a pendulum."

"Even manslaughter," Tatsumi said, using the curious Western term. She could think of no other. For what had happened on the beach,—murder" was not the right word.

A faint gleam shone in Philby's sunken eyes. "Yes. You understand."

"Not completely," Tatsumi said honestly. "You are waiting to witness events that will correct your ... your moral guilt?"

"I bear no moral guilt," Philby said hoarsely. "I wait to see the swing of the pendulum, for aesthetic satisfaction. I am an artist."

Time artists. “But,” Tatsumi could not help saying, although it was no part of what she had come to say, “an artist does not just wait. An artist participates in the process.”

“We participate,” Philby said. “Ask any court if the witnesses are not participants in a trial.”

“But that is justice, not art.”

“Ah,” said Philby, “but the wisdom of our art is that we do not recognize the distinction. We know that only art creates true justice.”

Tatsumi gave it up. Subtly interested her, self-serving rationalization did not. “Mr. Philby, will you look at some pictures I have brought?”

“An artist witnesses whatever part of the design is entrusted to him.”

She opened the packet she carried, hard copy from the QED. “These are carpet whales. They are all—all, Mr. Philby—gathering at a point in the strait between Southland and Nighland. The point is as close to the sub-Chujo node as possible, the actual node being inland. This picture here shows one himatid that has rolled over to expose its ventral side. The formation in the air above is an illusion of exudates, gases and water, reflected and refracted by thousands of minute bits of shiny metal, which it must have taken the whale millennia to collect and embed at precise locations between its teeth and stomata.”

Philby did not seem surprised to hear this.

“What does the illusory formation look like to you, Mr. Philby?”

He said promptly, “It’s Aaron Kammer.”

“Mr. Philby, you told me ... “ No. Wrong. “Mr. Philby; have you ever seen anything like this before?”

“On the beach. After he died.”

“After?”

“I walked between the whale skins. What was left of the whale skins_ And I saw him, just like that, red and green ribbons of light.” To her shock, Tatsumi saw that there were tears in his sunken eyes. Tears of gladness. What strange ideas of absolution had been touched in his mind by all this?

She said, “Just like this yOu saw him. After he was dead.”

“I told you so at the time, Tatsumi-san.”

“Yes. You did.” How cold she had been to him, how furious, how judgmental. How young. “You said something else, as well. You told me what Kammer’s final words were before the... the massacre started.”

“Yes. He said, ‘They’re the ones. They’re the ones, and you’re killing them!’”

She had remembered right. She let out her breath. “Thank you, Mr. Philby.”

“Thank you,” he said.

“Do you need anything? Pain blockers?”

“You have brought me everything a time artist needs.”

He was too sick to debate with, even if debating had been her style. Too sick, too old, too peculiarly shamed. Tatsumi had not known Westerners were capable of such deep, all-accepting shame. Certainly she had not known Philby was. She had been wrong. Or perhaps over the course of twenty years he had changed, grain by grain, like those flabby plants that petrify into unbreakable stone.

As she climbed back into her flyer, she thought of two things, turning them over and over like the smooth white stones in her grandmother’s miniature sand garden in Kyoto. The first was what Aaron Kammer had said to her, Suzy Tatsumi, about the Chupchups on Chujo: “Learned much myself on Chujo about understanding and standing between. Masters and slaves. Everybody’s right, everybody’s wrong.” She had not known what he meant. Now, seeing Philby, who had been so wrong and had worked it around in his mind to a process of right that united justice and art—a process she had just contributed to with her prosecutorial questions—she was not so sure. Right and wrong looked more complex to her now. And mastery—of anything—seemed much dimmer.

The other thought was that it had been years since she had remembered her grandmother’s sand garden in Japan, on Earth, her birth-home.

“I tell you, she’s gone!” Jane Johnson screamed. “She’s gone, looking for that damn iguana!”

Bruce Johnson stopped short. The Ihdizu had never in the least reminded him of iguanas—where did Jane, even in her hysteria, get that? And it wasn’t like her to be so ethnocentric, so utterly imperial about the aliens.... She was a scientist. Even if the science was only botany.

“Calm down,” he said. “She’s probably playing in the Carrot temple, or sulking somewhere.... She knows how much air is in her tanks and, what her physical capacity is. You underestimate her, Jane. She’ll be all right.”

“Which only means you don’t want to bother to go looking for her! Well, I’m going!” She yanked on her suit, crying.

Bruce suppressed his irritation. He didn’t know what was happening to Jane. She had always been high-strung, but now...

“High emotion means an increased chance of accidents, Jane. Look, if you have to go out, just calm down first. Filla’s all right, she’s a Genjian.... “

“What? What did you say?”

“I said, she’s a Genjian.”

Jane sobered immediately. Coldly, methodically, she pulled on and sealed her suit, ran through the safety checks. She did not look at him or speak to him until she actually had her hand on the air-lock recycle. Then she said, in a voice he had never heard from her before, “She’s a Canadian child.”

The QED chimed, not softly,, which meant a transmission of crucial, although not life-threatening, importance. Bruce turned his head toward the QED. When he turned it back, Jane was gone.

Unnecessary. Rilla would be fine. She would be back in an hour. Unnecessary, and therefore wasteful.

“Transmission from Chujo,” the QED said. A Japanese head appeared, someone Bruce didn’t recognize.

“This is Dr. Kenzo Ohkubo,” the man said in English; Bruce recognized the slightly mechanical

undertones of the QED translator. Dr. Ohkubo was speaking Japanese. am at temporary base near the sub-Genji point, twenty-five degrees twenty-eight minutes south, where the largest of the snug mats is growing. I wish to play for my esteemed colleagues on Genji, in which I include all scientists in reach of the information network, the recording of an interview I have just had with a Chujo Master.”

Bruce whistled. He wasn't sure what impressed him more: that the Japanese, who tended to be formal and a little proprietary about scientific information, were sharing the interview, or that they had finally gotten one with a Chupchup at all. After twenty-eight years!

“We did not obtain this information by our efforts,” Dr. Ohkubo said. “It was freely given. The Chujoan walked from his camp near the snug vats to our dome. When I advanced to greet him, he spoke as follows.”

The camera angle shifted; it was not a particularly good picture. The image of the Chujoan wavered, steadied; no one at the temporary camp, hopeless of any real contact, had prepared for this abrupt appearance. Bruce stared, fascinated, at the noseless humanoid face with the huge gold-brown eyes, slitted mouth, and flaring, scalloped ears. How good would the translation be? For two and a half decades the Japanese had been dropping transmitters into Chujoan encampments and farm centers. This electronic eavesdropping had yielded only a meager vocabulary and the knowledge that Chupchups would not shine at cocktail parties. The QED translation program would not have much to go on.

But speak it did, forty-five seconds of trills, twitters, and growls. Bruce had the eerie impression that the Chujoan had slowed down its speech, making an effort to be more intelligible. When the statement was over, a callused, blue—fingernailed hand extended toward the camera, offering a smooth blue box about half a meter square. A human hand moved into camera range and grasped the box. Then the Chupchup simply turned and loped off.

Dr. Ohkubo reappeared. “We have run this speech through the best language programs we have. Many of the Chujoan words were new to the computer. This is the closest approximation we can make, going first to Japanese and then to English. Please bear in your mind that it may not be correct.”

The voice of the translator began: “It *is/will be* *time/an animal hunted/a problem solved.* Snug travels to Genji. *Error/hunting-mistake-which-leaves-an-animalunkilled* is *solvecl/hunted/built/compktd.* Cities are empty because Chupchups not *inside/needfiil of/tied down for the kill* the cities. We eat the *beings* of Genji. The *beings* of Genji eat us. It *is/will be* *time/an animal hunted/a problem,solved.*”

Dr. Ohkubo returned and said something brief in Japanese. Bruce, watching, wondered what he could have said for the translator to produce the idiomatic, resigned English translation: “There you have it,”

Jesus Christ, Bruce thought. Jesus H. Christ.

Then he remembered that he was a scientist and should take the flyer posthaste to either Okuma. Base or—betterwhere the carpet whales were gathering as close as possible to the sub-Chujo node.

Only then did he remember that Jane had the flyer, looking for Rilla.

“Poetry,” Dane said. “It could be poetry. The last line repeating the first...”

“The only clear points,” said Don Serranian, one of the physicists, “is that the snug is supposed to travel to Genji, and that something is supposed to be settled. But there's no way that snug could cross space!”

“Are you sure?” Miyuki Kaneko said. Her voice held an underlying tremor that made Tatsumi watch her

closely. “There has been for generations now speculation about bioengineered spaceships.”

Everyone spoke at once then. Dane tried to follow the arguments behind the positions taken by highly trained minds, none of whom agreed with each other.

“The same word carries connotations of ‘time,’ of ‘an animal hunted,’ and of ‘a problem solved.’ Is that threefold meaning a construct of our translator, or does it imply a fatalistic belief system in which time is measured by what events are resolved in a given span?”

“The Chupchups seem to be saying that they abandoned the cities by their own choice, because they no longer needed them. Not because the race had degenerated to a pre-city level. Which, I’d like to remind everyone, is what I maintained all along.”

“What are the implications of ‘We eat the beings of Genji’? The translation of ‘eat’ is firm, but the translation of ‘beings’ is tentative, level-three uncertainty—are they talking about the Ihrdizu? Are the Chujoans possibly cannibalistic? Or could they have been once?”

“The next sentence is ‘The beings of Genji eat us.’ That seems to imply a metaphorical interpretation rather than a literal one. Perhaps the entire message is metaphor!”

“If the Japanese would bring that blue ‘book’ to Genji where the rest of us could have a crack at it—”

“Ihrdizu folk sayings like the groveling ‘May I never rise to Chujo’ seem to me to imply an exalted state for Chujo. If it represents a kind of perfected being-hood, a Nirvana—”

“Ihrdizu ecological disasters—”

“—carpet whales—”

They were not getting anywhere, Dane saw. They never did get anywhere. Individual researches illuminated this small fact of the Murasaki biosphere, or that small fact, or a tentative connection between this and that. But they never got anywhere creating a coherent overall picture. Not in thirty years. Did that mean that humans couldn’t grasp a big picture so alien? Or that there was no coherence to be grasped?

Dane didn’t believe the latter.

Why not? Because he just didn’t. The universe was not that fractured. Or human comprehension that limited.

“We do not really understand anything happening here,” Tatsumi said in her pretty voice, and he looked at her, startled to hear his own thoughts articulated so clearly.

Tatsumi smiled at him. No one else even heard her: they were all too loud with desperate speculation.

Why desperate? Dane wondered. But then he knew: contradictory elements in their adopted world made hash of the limited understanding they had already struggled so hard to achieve. The, lack of understanding made them feel excluded. Genji and Chujo, by its sudden eruption of events so clear to their own species and so weird to the humans, were shutting the humans out. They felt exiled.

And he, Dane, did not? No. Why not?

Tatsumi said to him, in a voice barely above a whisper, “You, Jordan-san, already felt like an exile.”

Rilla stopped walking to check her tanks. Not quite halfway used. She could walk a little ways yet. But not far. She would have to find Tmafekitch soon. Or

She was farther away from the field dome than she had ever been, except in the flyer. The village was far behind. Around her were no birth pools, no Carnot temple, no food ponds. Only low yellow plants and marshy ground and low hillocks and the path, hard and firm, that generations of Ihdizu had worn for trade. There were no people. Rilla didn't like to admit how much she wanted to see a snorkel waving above the vegetation. Anybody's snorkel, it didn't even have to be Tmafekitch's.

How could Tmafekitch leave without saying goodbye! How could she!

Rilla walked on a little farther. Above, Chujo was full face, the color of the sand that she and Tmafekitch used to build domes with. Chujo was streaked at one edge with white clouds. It was ugly. Tmafekitch wasn't there.

Her tanks suddenly chimed, very loud. They were half empty.

Rilla sat down on a rock beside the path and started to cry. She had to go back. She wasn't going to see Tmafekitch after all. She had to go back or she would die. She couldn't even, in fact, afford the time and energy to sit here and cry.

Life was awful. Nobody had ever told her life was going to be this awful.

Rilla got heavily to her feet, and Tmafekitch came trotting around a hillock.

"Tmafekitch! You're here!"

Tmafekitch stopped dead and clicked her feet in astonishment. Her snorkel waved in loops. She said to Rilla in their personal language, "Why are you here? Where do you go?"

"I came to find you! You left before I came back!—

"It was time for my mating journey," Tmafekitch said, still clicking and looping. "Are you going on a mating journey now?"

"Of course not!" Rilla said. This was not the meeting she had envisioned. A new thought occurred to her. "Tmafekitch—why are you traveling back toward your village?—

"I cannot go on my mating journey."

"Cannot?" Rilla said. She had never heard of such a thing. "Why not?—

"Because it is ****."

Rilla had never heard the word. Something odd in Tmafekitch's snorkel loops made her think suddenly that Tmafekitch had never said the word, either. But that didn't make any sense. Rilla wished she had the translator with her after all.

"Tmafekitch, what does that word mean? The one you just said?"

Tmafekitch came close to Rilla's rock. She sat down on her tail, then got up again, which meant she was thinking hard. Her snorkel looped wildly. A flock of silverbirds flew overhead, and only one of her upper eyes tracked it, so distracted was she. Finally she sat down again on her tail and put her face very close to Rilla's, as talkers often did when they came to the exciting parts in a story they were talking.

"It means time. And an animal killed after long hunting. And... a problem solved."

"What?" Rilla said. "What?"

Tmafekitch took her face away. The silverbirds suddenly started to screech, and Rilla looked up. A flyer approached. Mommy or Daddy. Or both. Probably furious.

“Oh, uneaten turds,” she said. “Tmafekitch, are you really coming back to your village?”

“Yes.”

“What about your mating journey?”

“I cannot go. It’s ****.”

There it was again. Rilla had never heard of anything interrupting a mating journey once it was started.

“What about your heat flush?”

“Gone.”

Rilla had never heard of that, either. “Will it come back?”

“Oh, yes.”

“When?”

“After ****.”

The flyer landed. Through the window Rilla could see Mommy, gesturing at her furiously. Nothing was going right. Except, of course, that Tmafekitch was coming back to the village. Even if that made no sense.

“Tmafekitch—how come you never told me this word before, if it’s so important it can stop your mating journey?”

Tmafekitch seemed to think deeply. Her snorkel ceased all motion. A long moment went by, in which Mommy climbed out of the flyer and stalked toward Rilla.

“Because,” Tmafekitch finally said, “it was not before in me.”

“That’s crazy!” Rilla burst out angrily.

“Yes,” Tmafekitch agreed. “The Masters are sometimes crazy. They did not put the word in the Ihrdizu. Not before. Only now.”

All over Genji, Ihrdizu on their mating journeys stopped, turned around, and walked back to their villages. Researchers raced to question them. Each little-she re-sponded courteously.

“It is ****.”

Fishing boats stopped fishing, stowed the catch they already had, and sailed back to their fishing ports. Two scientists, one Japanese and one Anglo, took flyers to two different ports, made ritual-greetings, and asked why the boats had returned.

“It is ****,” the Ihrdizu said.

A three-day festival in the Southland central valley, a gathering of two thousand Ihrdizu, came to a sudden halt. The festival-goers packed up their young and their provisions and started back to their own food ponds and birthing pools. The itinerant talkers who had come for the festival, who had much local

fame but no food ponds or birthing pools of their own, each went with a different group of Ihrdizu. Bruce Johnson flew to Southland to question as many talkers as he could. Why did the festival stop? Why were the talkers each boarding with an Ihrdizu household instead of continuing on their accustomed circuit?

“It is ****,” the talkers said.

“How the hell did a Chujoan word get into their vocabulary?” Don Serranian cried. “A word that apparently none of them knew before the same identical moment all over the fucking planet?”

Bruce Johnson said, “Hard-wired. Into the genetic structure. Had to be. All set for conscious access at some signal. some timing system.” Johnson hardly slept. Dane thought. As tightly wrapped as Serranian, Johnson nonetheless was responding differently to this latest development. He was completely absorbed, forgetting even to eat, to bathe. Serranian, like many of the others, was frustrated and scared by events that made no sense. Johnson loved it.

Serranian said tightly, “What sort of signal?”

“How should I know?— Johnson said. He walked in tight circles in front of the QED. “Maybe astronomical, like the minute variations in light that trigger some bird migrations on Earth. Maybe internal. If knowledge was stored in the Ihrdizu brain, passed on generation after generation, until some chemical inhibitor was removed in the synapses ... Yes! Yes!” He began punching keys furiously.

“Removed how?” Serranian yelled. “You can’t just have spontaneous genetic combustion!”

“We can’t,” Johnson said gleefully. “Can the Ihrdizu?”

“No!”

“How the hell do you know? Could they have an outside trigger?”

“Like what?” Serranian was furious; Dane actually thought he might strike Johnson. Dane moved swiftly between them. A First Conciliator was not supposed to be a bodyguard, but to keep fanatics conciliated ...”

But Johnson seemed to calm down a little, even if Serranian did not. His next words were very soft, almost inaudible. His face shone. “An outside trigger. Yes. Tell me, Serranian—how do the carpet whales communicate with each other across huge expanses of ocean?”

“We don’t know!”

“Carpet whales,” Johnson said musingly, his face still radiant. “Carpet whales.” He started typing rapidly in QED mode, inputting to the fuzzy-logic program he had set up to coordinate event-data. After a while he leaned back and watched the screen.

“Will you look at that,” he said softly. “Just look at that.”

Every mature carpet whale on Genji had arrived at the Southland-Nighland strait, south of the sub-Chujo node.

They blanketed the sea for kilometers with their sinuous black flatness billowing on the waves, their dozens and dozens of pairs of thin waving tentacles. The largest of the whales stretched a hundred meters long, twenty-five meters wide. There was not enough food in the sea for all the stomatalike mouths to graze on, so the himatids seemed to have simply stopped eating. They did not move much. However alien they were, it seemed obvious what the carpet whales were doing.

They were waiting.

All over Genji, the Ihrdizu returned to their villages, and waited.

On Chujo, the mats of snug grew and writhed, and, circled around the mats, the Chupchups waited.

The humans looked at each other. The fascinated ones, Dane thought, the ones like Bruce Johnson, ran data program after program, straining even the QED's powers. The others, the ones used to the orderly accumulation of knowledge that grew rather than decreased in logical connections, sat around tight-lipped—and cursed the waiting.

“I want her out of here!” Jane Johnson said to her husband. “I want Rilla on the orbital ship, away from all this! It's just too weird, and nobody knows what will happen!”

,

“I won't go!” Rilla said. “I want to stay here on Genji!”

Jordan Dane doubted that Bruce Johnson actually heard either of them.

“In my grandmother's sand garden,” Suzy Tatsumi said reflectively to Dane, “were quiet empty spaces, bare sand or bare polished rock, as much a part of the design as the living bonsai.”

For days there were storms. Powerful winds blew Genji's thick air masses. Rain whipped across the seas. In the low-lying villages, the waters rose dangerously above flood tide.

But then the winds blew themselves out, the clouds dissipated, and one of Genji's rare clear skies shone above noontime Southland. And the carpet whales, the massed and tightly packed carpet whales in the Nighland-Southland strait below Chujo, all rolled over to their ventral sides.

Signals began to flash into the sky.

Grains of metal from the seas, grains gathered over millennia and apparently stored in precisely measured amounts in precisely measured locations on the ventral surface, reflected the light of Murasaki. Clouds of gases released from millions of stomata refracted the light. Focused it. Sent it toward Chujo, which was not in eclipse with Genji and therefore was experiencing midnight, a moonside midnight clear and cloudless at the sub-Genji point.

“The light signals are of course very faint. Far too faint to activate any phototropisms in the snug mat,” Kenzo Ohkubo transmitted from Chujo. He said it as if he did not expect this information to make the slightest bit of difference, as indeed he did not. They had all, or nearly all, given up expectations. What expectations should *E. coli* have about the next food to come down the human gullet? Ohkubo, thought Jordan Dane, sounded almost jaunty. He was not among the scared ones.

The electromagnetic signals—clearly more than just light—went on striking the great snug mat on Chujo. The mat stirred. “A hive mind, perhaps,” Bruce Johnson said.—“Or something.” —

All around the moonside of Genji, the Ihrdizu sat still, remembering things they had never before known.

Nearly every scientist flew, after wild negotiations for flyer space, to the Southland-Nighland strait, and agreed-upon research spheres be damned. OW= Base was effectively deserted. Technicians remained, along with Jordan Dane, Suzy Tatsumi, and—to Dane's surprise—the Johnsons. At first Dane thought that Bruce Johnson was staying for Jane's sake. Later he realized that Johnson wanted to be near the QED. preferring to analyze data than to gather it.

Jane Johnson, tight-lipped, disappeared into the dorm dome, taking Rilla with her.

Bruce, Dane, and Tatsumi were gathered at the screen in the main dome when Miyuki Kaneko appeared on the all-channel transmission from Chujo. Unlike Kenzo Ohkubo, Miyuki's voice was not jaunty. It was perfectly steady, without shading but not empty, as white light is without color because it contains all colors.

Miyuki said formally, "To all human scientists: The Chujo team has succeeded in opening the Chujoan 'book' voluntarily given to us by the Chujoan spokesman. The artifact is a container of opaque and very hard glass. It has taken the team so long to open both because they did not wish to break it and because the method of closing, locking, and opening is unlike anything humans use. Dr. Ohkubo, who is at the snug-mat site, has asked me to describe to all of you exactly what we have found."

She drew a careful breath. "To call the artifact a 'book' is incorrect, although to call the cairns a 'library' is not incorrect. The glass box contained a pile of etchings on thin plates of glass. These are unmistakably numbered by dots in the left-hand corner of each: one dot for the etching on the top, two dots on the next we encountered. We will transmit the etchings now, with commentary on what we have learned thus far."

"Listen to her. Prerecorded, all of it. As good as already written the journal paper,— Bruce Johnson said. He could not sit still. He danced in front of the screen, his eyes burning with excitement and fatigue.

Tatsumi, pouring tea for Jordan Dane, said, "Formality can be such a protection against disbelief."

The huge mat of snug, covering the entire floor of the valley, wrinkled, stretched, slid. The Chupchups scrambled across its surface, heading for a crevasse that billowed steam. Streamers of sulfurous yellow billowed across the mat. Suddenly, one edge of the mat reared, jerked, and leapt into the sky. The edge struck the far side of the crevasse, to join with a second leaping edge. The two waves stuck, clung, forming a seamless whole. The bioloon started to billow along the crevasse.

"Not again," Miyuki said, in the same formal voice in which a few hours ago she had recorded the contents of the Chujoan glass box. "They should not die again."

No one heard her. The rest of the team recorded, scanned for samples left behind, controlled the movements of the robot probe that would fly as close alongside the rising bioloons as Kenzo Ohkubo dared. They observed. They were scientists.

"The first etching," said the prerecorded Miyuki, "as you can see, shows two Chujoans standing with an Ihrdizu on what clearly seems to be the surface of Genji. Please look carefully at the Ihrdizu, who is a mature female. Around her snorkel is a ... a 'necklace.' It is an actual necklace, in miniature, made separate from the etching and then embedded in the glass."

The picture of the etching held, then magnified the Ihrdizu's snorkel. Dane leaned as close as possible to the screen. He realized he was breathing heavily. Like Bruce Johnson, he thought ruefully, and glanced at Tatsumi. She went on drinking her tea, her dark eyes large.

The screen transmitted an image of a corroded lump of metal. Miyuki's voice said formally, "We all have known, of course, that the Ihrdizu once had metallurgy. This coin or medallion was found by the expedition's first ecospecialist, Dr. Katsuyoshi Minoru, twenty-five years ago. Core samples taken under choice Ihrdizu seaside villages have shown that, just as they have shown that the Ihrdizu culture flourished in waves, dying off and then being rebuilt at least six separate times. Each time many other flora and fauna have died with them and never been replaced.

"A great question has always been: What caused the die-offs on Genji? What upset the ecological

balance so much that the Ihdizu had to fight for prime space, by the sea but on very high ground, just to survive? What ecological disaster raced through Genji, changing everything eighty generations ago in a breathtakingly short space of time?"

The snug mat was lifting itself. Alive with purpose, rippling, its center axis bulged, pulling the rest of it along the ground with a hiss like a wave sliding up a beach. It shed pebbles, making, itself fighter, letting go of its birthplace.

Beneath, in the vat, hydrogen by-products of the snug combined with other gases. The mat rose, shaping itself into a teardrop. A teardrop with pockets. From the other valleys of the volcanic ridge, other bioloons rose, each bearing a load of Chujoans clinging to the sides, scrambling into the pockets.

"They will all die again," Miyuki said. "All die! Like the successive generations on Genji, like the carpet whales slaughtered by the Ihdizu ... death. All death!"

Kenzo Ohkubo looked away from his recording instruments long enough to glance at her. He said quietly, "You forget yourself, Kaneko-san."

The rebuke, gentle as it was, sobered her. She watched the bioloons rise to the sky, paced by the robot probe.

"The second etching," said the formal Miyuki two hours earlier, "shows the same two Chujoans—computer analysis shows all four figures to have been etched from the same plate—standing still on Genji. This time the necklace-bearing Ihdizu is dead at their feet. The plants around them are dead. The village behind them is in flames. The small birthing pool in the lower left corner is overgrown with what seems to be—this is just supposition—some sort of snug. It is not possible, given our current uncertainty about Chupchup culture, to read the identical expressions on the two Chujoan faces."

"Grief," said Jordan Dane at once. He glanced at Tatsumi. She put her teacup on the table; it rattled in her fingers.

"They caused it," Bruce Johnson said. "Dane—the Chujoans fucking caused the die-offs. Or that die-off, anyway. Look at that birthing pool. Snug. It was like the wineskin plague, only this version attacked Genji-life-forms. The Chujoans were the bioengineers, and they fucked up, and they caused an ecological disaster!"

Dane said shakily, "You don't know that."

Johnson said, "I'm going to set a QED fuzzy-logic program right now to correlate the data and deduce the probabilities."

Tatsumi said, "He said—" She stopped.

Dane turned toward her. Her face, ordinarily the clear pale gold of good brandy, had gone white. He put a hand

on her shoulder, gently, the first time he had ever touched her. "Who said what, Suzy?"

"Kammer. He said to me, after the Chujoans had covered him with that snug, twisted and deformed him ... "

"What, Suzy? What did Kammer say?"

"Learned much myself on Chujo about understanding and standing between. Masters and slaves.

Everybody's right, everybody's wrong."

"Masters," Dane said. "Masters of bioengineering." They watched the screen, waiting for the next etching.

The bioloons soared into the blue-black sky of Chujo. On the ground, the long lines of Chupchups who had not climbed onto the snug watched the others go.

Miyuki strained her eyes until the bioloons were small dots. Still they kept rising, high into the atmosphere. She put her hand over her mouth, realized what she was doing, and took her hand away. This time she would not be sick.

She would not.

Ohkubo's team had already erected the dome of double-thick shielding material. Last time, they had had no protection. Last time, when the Chujoan bodies had started to hurl back toward the planet, still trailing streamers of snug, it had been only chance that none of the splattering corpses had struck any of the human researchers. Only the body fluids had.

She would not be sick.

Inside the dome, the researchers crowded around the screen receiving transmissions from the robot cameras pacing the bioloons. Ohkubo focused on one large bioloon, adjusted the telescopic lens, and split the screen to show transmissions both from a distance large enough to see the bioloon whole, and from a few meters away from one pocket. On the second screen, a golden-brown Chupchup face with large-pupiled green eyes stared at Miyuki. If the researchers had known enough to name Chupchup expressions, she told herself with rare sarcasm, she would have said the face was exalted.

She turned away from the screen, not wanting to see him die.

"The third etching, which you see here, is ... is ..." The prerecorded voice faltered.

"Jesus H. Christ," Bruce Johnson said, not prayerfully.

"—is perhaps stylized rather than, literal. We know from the carvings in the abandoned cities of Chujo that the Chujoans are capable of stylized representation. Or perhaps the etching is literal."

A line divided the top of the drawing from the bottom. The line might have been a sea cliff, or a shoreline, or nothing at all. Above the line, the same two Chujoans Dane did not need a computer analysis to know they were the same ones as in the first two etchings—knelt, their heads bowed, staring below the line. Below the line, a carpet whale swam, its dozens of "eyes," those sensory organs located between each pair of tentaclelike "arms," all turned toward the Chujoans. The orientation of the eyes was painstakingly drawn. The himatid regarded the penitent Chupchups, who regarded them back.

Johnson laughed, a slightly sour note. "It's a story. Just another myth, another talking."

"It's not a myth," Dane said. He wondered how he knew. "The carpet whales somehow judged the Chujoans for the mess they had made of the Genji ecology. Well, maybe not 'judged'—but got told about it anyway. Or something."

Johnson started frantically feeding data into his fuzzy-logic program.

Tatsumi said quietly, "The carpet whales made the illusions of Kammer. Of Kammer in his tatters of snug. Of Kammer dead, just as Philby saw him on the beach after the massacre."

“The himatids are very old,” Dane said. “Not even Holden knows how old.”

“Master and slave,” Tatsumi said. “Did I ever tell you what Edward Philby said to me about time, art, and justice?”

Dane didn't answer.

“He said our great failing was that we could not recognize that they were the same things.”

High in the atmosphere above Chujo, the bioloons began to change.

The robot cameras recorded it all, from several angles, at several different depths, with several different levels of magnification. There was no mistake. The Chujoans in the pockets of the bioloons, all at exactly the same moment, extended their hands straight above them, their humanoid legs straight below. They went stiff, long rigid axes of stiffness. The pockets around them grew as the snug shifted violently, then sealed itself. Each rigid human was sealed in a pocket of snug: giving warmth, conserving air. Around these rigid axes the bioloon shifted with incredible swiftness, changing shape too precisely for anyone to think it was by chance.

“What do they do?” Ohkubo cried. “They are creating an ... an aerodynamically feasible shape—”

The gases in the bioloon's central cavity suddenly shot out a point near groundside, and the bioloon—no longer shaped like a balloon—shot forward. The electronic matchers on Chujo, all except Ohkubo, fell silent. Miyuki felt an emotion creep over her she could not name. The Chupchup emotion, her own—she could no longer name anything. She could only watch, the glass etchings dancing before her eyes.

Finally someone said, the voice hoarse, “If the bioloons manufacture more hydrogen through photosynthetic processes, maybe even other gases as well ... “

Someone else said, “We know the snug can interact with the Chupchup body, drawing on those resources as well....”

“There is a tremendous amount of energy stored in snug chemical bonds... “

“At their current altitude, how much escape velocity would they need ... “

“How much time would it take, sealed in those pockets ... Of course, if the bioengineered process has the capacity to manufacture additional gases for breathing as well as propulsion ... “

“How could they have calculated the right entry point, the right angle for reentry ... No, no, it isn't possible “

“How do we know what is possible? We cannot even see the inside of those ... craft.... “

The bioloons continued reshaping themselves.

At the sub-Chujo point on Genji, the carpet whales writhed and twitched, changing with minute precision the electromagnetic signals beaming into the sky.

“This fourth drawing,” said the formal Japanese voice, “shows a spacecraft of some sort covered with what appears to be formalized drawings of snug.

“We do not know whether snug can survive the interplanetary void, but this is partly because we do not know whether snug can take forms different from that observed on Aaron Kammer two decades ago. Bear in mind, also, that this etching, which appears to be taking the two Chupchups to Chujo away from.

Genji, may just be a story. A myth. Or a stylized version of some actual historical happening unrelated to the events of the other etchings but blended with them in the retelling over time. We simply do not know. The implied narrative conclusion drawn from this ordering of etchings, that the sentient humanoid race was somehow sent away from Genji and to Chujo at the behest or order of the himatids, may be completely erroneous. Silly, even. We do not know.”

—Quarantine of experiment,” Bruce Johnson said. “Exile,—Jordan Dane said.

Tatsumi reached out and took his hand.

The bioloons glided into the comparatively narrow strait of space between the atmospheres of Chujo and Genji.

“Shape still flattening,” said Ohkubo tightly, monitoring the transmissions from the robot cameras. “I think it’s gaining maximum surface area for some sort of photo-tropic activity, probably releasing gases. Why did we not think to send along a probe capable of spectral analysis?”

This question was a lapse of control. Miyuki thought; everyone pretended Ohkubo, had not asked it. The answer was obvious, anyway. They had not sent a probe to analyze unknown phototropic reactions that might furnish propulsion capability because no one had known such an event was imminent. Or possible. Or thinkable.

How many of the Chupchups sealed in their—bioloon pockets were still alive? Had their life processes been slowed by the snug to require less breathable air, less heat, less gas exchange? It seemed probable. But, then, perhaps the snug ship had speeded up the Chupchup life processes to produce more of these things. How would the humans ever know? Unless, of course, the ship remained in analyzable form once it reached Genji.

If it reached Genji.

“Entry into Genji upper atmosphere in ... three minutes, forty-two seconds,” someone said. “What will they do about the heat of entry?”

No one answered.

“Fifth comes an etching of a Chupchup city on Chujo. It is partially constructed. As you see, the actual hard labor appears to be mostly being performed by ‘trolls’; the Chupchups are standing to the left-hand side absorbed in an undifferentiated artifact.”

—That’s no artifact, that’s my snug,” Bruce Johnson said. He laughed and glanced around. Tatsumi would have said his manic gaze saw none of them. “They experimented with the damn stuff in the safety of Chujo until they got it right! I’ll be damned!”

Dane Jordan said, “You are making a supposition.” Tatsumi saw that he didn’t believe his own words. He, too, could recognize snug when he saw an etching of it.

The Japanese scientist, Miyuki, must have been under tremendous internal pressure, to draw herself back from the recognition.

“Sixth,” Miyuki said, “is this stylized picture, virtually identical to a carving, one of many, in the abandoned Chupchup city.”

The animal informally named “dune tiger,” now presumed extinct, glared at them from the screen. Its long, long tail stretched into a wraparound wreath that grew gnarled branches, sprouted ample flowers,

twisted about itself to form a Chujoan profile, and finally curved back to be eaten by the tiger itself.

“Full circle!” Bruce Johnson yelled. “Yeeooweee! The Chupchups perfect the bioengineered solution to the ecological catastrophe they caused—and the cycle comes full circle. ‘Masters!’ Damn straight they call themselves fucking Masters!”

Dane said, “It could be just a story.... “

Johnson finally seemed to see him. “You don’t believe that.”

Dane didn’t answer. Finally, he said, “No. I don’t.”

“What was it that Chupchup said to the Japs?” Johnson demanded. “The same multitiered concept the Ihrdizu have taken to spouting? ‘It *is/will be* *time/an animal hunted/a problem solved*.’ No wonder they abandoned their damn cities without any sense they’d degenerated! The lab part of the process was over! They were ready for field experiments!”

Tatsumi grasped what he was saying. For a second she went still, awed by the sheer size of it. A design for justice taking eighty generations, saving a world by exiling the perpetrators/saviors for only the most, practical of motives .. All genetically hard-wired. Justice that was genetic.

Justice? Or was it art?

Johnson said gleefully, “And we thought we on Earth understood the self-regulating nature of a biosphere! We don’t know shit!”

Tatsumi could not understand why that should fill him with such pleasure.

When the bioloons hit the atmosphere, they changed again. The robot camera’s telescopic lens showed a ripple over every centimeter of their surface, subtle and uniform, as if the snug were reorienting at a cellular level. The albedo increased dramatically, acting as a heat reflector and hence a heat shield. At the same time, the shape of each ship changed again. As the gravity well took hold upon the Chujoan cargo in its pockets, the ship broadened, thinned, curved in proportion to the increasing air pressure. By the time the ships were fully in the atmosphere, they were no longer ships but enormous, aerodynamically stiffened parachutes.

“Here,” said the prerecorded voice of Miyuki, and even through her formal control, her listeners felt her relief, “is the last of the etchings in the Chujoan library box.”

The screen showed parachutes, uneven parachutes unmistakably of snug, falling through the sky. Stylized Chujoan faces adorned each parachute. On the ground—so clearly Genji ground, the edge of the sea decorated with Genjian plants and a watching Ihrdizu—the sea surged. It was thronged with carpet whales, watching the sky. From each himatid, the artist had etched a faint line to a bioloon, a line made of flowers and plants no human had yet seen anywhere on Genji.

“Coming back,” Dane Jordan said. His voice had turned husky. “Returning to Genji. Like the myth of Szikwshawmi. Angels coming from the sky to confer bio-logical strength on female Ihrdizu.” Was that what had happened once long ago?

“Guided by the carpet whales,” Tatsumi said.

Johnson said nothing; he was updating his fuzzy-logic deduction program on the QED like a man possessed.

“But there’s one thing I don’t understand,” Dane said.

Tatsumi said, with honest astonishment, “Only one?”

“If the carpet whales are to guide the Chujoans back to Genji with new bioengineered snug—if the whales are the masterminds—”

Johnson looked up, with scorn. “Masterminds! That’s all wrong. They’re genetically hard-wired for their role, too. None of the three races is any more in control than the others!”

“All right.” Dane drew a deep breath. “But if the signal or whatever comes from the himatids ... what happened last time? Why did the Chujoans get into their bio-loons and start off into their atmosphere twenty-eight years ago, only to fall back and die? What went wrong?”

Johnson stopped typing. His forehead, sweaty with exultation, furrowed.

Dane said, “If the carpet whales maybe started to give some kind of signal, and then the whole ... ‘mission’ aborted—why? Why wasn’t the signal what it was supposed to be?”

“Damn,” Johnson said. “I don’t know. Maybe the computer can come up with something....”

Tatsumi saw it. Wavy lines appeared beneath her eyelids, dizzying her, then righted. She said, “I know.”

The men turned to her. Johnson said, “You know why the carpet-whale signal failed last time? Why?”

Again she saw Edward Philby, poor tormented justified Philby dying of his cancers among the time artists. He stood in the field dome and repeated the last words Aaron

Kammer had said, just before Kammer died:—‘They’re the ones! They’re the ones, and you’re killing them!’” The ones. The carpet whales.

She said, “The Ihrdizu killed too many. There were not enough left to make the right signals.”

Everybody’s right. Everybody’s wrong.

Cameras recorded frantically: on the south shore of Nighland, pointed at the sky; in fishing boats, as close to the himatids as the humans dared; in the sky itself, from out of flyer windows or on robot probes. No one had known what would happen, but they had known that something would, and the humans, Dane thought, were ready. Weren’t they supposed to be? Why else had the Chujoans broken three decades of disdain to give humans the library etchings? Why else had the figure of Aaron Kammer appeared above a carpet whale in exudates and light? Why else, if not to invite the humans to watch this Murasaki System story. this wordless talking that dwarfed anything the humans themselves had offered by way of petty Carnot temples or small-scale offers to day-trip to the moon?

Dane turned to tell his thoughts to Suzy Tatsumi. But at that moment the screen in front of them, filled with sea spray from somebody’s misplaced camera, switched pictures. The images flowing into Okuma Base from the sea strait had been erratic for the last hour. Everyone at the strait was too busy recording to take time to route the best images to those unfortunates left behind at the base or at field camps. They, like the scientists on Chujo or the crew in the orbiting ship, didn’t count. Only the sea straits, glassy under the moon, counted. The off-site researchers took what the automatic transmitter sent, in the order the computer received it.

But now the image cleared. Johnson raced back from his QED terminal to stand with Dane and Tatsumi. None of them spoke.

The parachutes of snug hit a sudden gust in Genji's treacherous, thick atmosphere. The affected bioloons wobbled. Light, focused by millions of tiny reflectors embedded in the upturned ventral sides of carpet whales, flashed toward the parachutes. Immediately the parachutes adjusted shape, the snug expanding or contracting at, the cellular level, until the chutes once more rode the wind.

The parachutes began to close at the bottom, meter by meter, until they once more became the shape of organic balloons. On each balloon, pockets bulged. Something within the pockets stirred faintly. The robot cameras, at extremely close range, showed the tops of the pockets begin to unseal.

"Thee gravity," Dane said aloud. "So much greater than Chujo. Bones not developed for it, muscles ... Unless the landing of every one of those is perfect, the Chupchups won't survive...."

The image changed again, this time to the southern shore of Nighland, meters from the nearest carpet whale. Ihrdizu were wading into the water from the beach, hundreds of them. They submerged themselves to the tops of their tentacles. A few actually touched the edge of a carpet whale, which could bring its huge shape so close to land only because of its weird flatness. The Ihrdizu were laughing.

Light, reflected in exudates, danced and beamed from the carpet whales. A peculiar noise filled the air, louder than the laughing Ihrdizu or the lapping waves, a high-pitched rising and falling wail that might have been sonic signals. Might, have been keening. Might have been cheers.

As the bioloons came closer to land, most of them aimed at the sea, the carpet whales began to submerge. One-third, half, two-thirds of each hiniatid, the portions farthest from the beach, sank under the water, leaving wide stretches of open sea between the remaining visible sections of whale. The light signals from these intensified. The noise rose in pitch. The first of the bioloons, splashed into the water.

And the himatids guided the rest of the Masters home.

Epilogue

Rilla stood near the birthing pool with Tmafekitch and her mate, a purplish male named Frikatim with a long snorkel and one extra toe. Rilla felt a little shy of Frikatim, whom, after all, she didn't know very well—how could she? She and Daddy had only been in the village a few days. Tmafekitch had had months and months to get to know Frikatim, and she must like him, or she wouldn't be having a baby with him, would she? Rilla didn't know if she liked him or not. As long as he let her have these ten days with Tmafekitch, these ten, days Daddy had promised she could have, Rilla didn't really care if Frikatim was there or not. It wasn't as if she were jealous of her friend's mate. Much.

She knew why Daddy had let her have the ten days, moving his field camp; clear over by Tmafelcitch's adopted village (after they found it). Rilla knew why. But she didn't like to think about the reason.

Tmafekitch made a sudden noise, a high clear click that meant she was startled. She took a few steps into the birthing pool, then crowded closer to Frikatim. In the pool, the tough membrane of the egg sac began .to wobble.

Rilla said, "Is the baby coming?"

Tmafekitch answered, in their own private language, "Soon!" and waved her snorkel in circles.

"I'll get the Master!" Rilla cried, glad to have something to do.

The Master was staying in a sort of dome made of woven plants and daubed mud, since this village, unlike the one Tmafekitch had been born in, had no Carnot temple.

A curtain of snug hung down in front of the doorway. Rilla knocked on a li-plant stem—the Masters had seemed to understand without any trouble the human custom of knocking—and the snug pulled apart. The Master came out.

He carried a stick covered with crawling snug. Rilla looked at it furtively—would it grow a new kind of plant

Tmafekitch and her baby could eat? One Master had already made a plant with bright red berries that Tmafekitch said were delicious, although of course Rilla couldn't eat them. She kept her glance at the writhing stick very fast. She was never really comfortable with the Masters. Unlike the Ihdizu, they seemed to have no interest whatsoever in a little girl.

She said to the unsmiling face, so much farther above her than Tmafekitch's would have been,—Tmafekitch. Baby. Now.” That was how the Masters liked you to talk to them: the simplest Ihdizu words, in the smallest number that would convey the information.

The Master didn't say thank you—they never did, Rilla thought resentfully—and started toward the birthing pool. Rilla followed. The Master walked too fast for her to keep up, which was supposed to indicate something wonderful about their bodies. That the bones or muscles or heart or something were actually changing to adapt to the gravity. Rilla couldn't have cared less. Even a Master should say thank you.

She had to admit, though, that the Masters had been good for Genji. She didn't understand it all, but Daddy said that since the Chujoans returned, Genji was being transformed from the bottom ecological layer up, for greater stability and abundance. Well, Rilla didn't know about that, but she did know it was prettier. There were thicker plants, and brighter flowers, and more food for the Ihdizu, and the sea had more bits of colored plankton floating in it. Rilla even liked the patches of snug that crawled freely around the tidal pools, sometimes venturing onto paths, although they gave many humans the creeps.

Like Mommy.

She had to see Mommy this afternoon, because the new ship was leaving for Earth tomorrow and Rilla would never see her again. It was only right, Daddy said, that Rilla see her one last time. She hadn't seen her much, because Mommy had never come down off the ship in orbit since the day the Masters had sailed out of the sky from Chujo. That old ship was too damaged by its trip to Genji to ever leave again, so it just stayed in orbit, and Mommy just orbited along with it. Everything Mommy knew about the Masters, she had watched on screens.

Rilla hated to admit to herself that she didn't want to see Mommy.

So instead she hurried along the path to the birthing pool, and by the time she got there the baby was tearing at the inside of the egg sac with its tiny sharp claws. Tmafekitch and Frikatim watched anxiously, their front legs in the pool up to their tentacles, not helping but making encouraging bleats and clicks. Everybody knew you mustn't help a baby out of its egg sac. If you did, it might not be strong enough to live.

But the baby did get out. It tore the sac and stuck its snout through, and then its front claws, and then pulled its claws back in and stuck out its little tentacles. It kept struggling until its back claws were free, and then it stood in the shallow of the birthing pool where Tmafekitch and Frikatim had fed it for so long with bits of plants and secretions and their own shit, which Daddy said was good for eggs. The Master had pissed in the pool, too, every morning. Now the Master picked up the baby and gently shoved a bit of special snug down its throat and another bit, a different color, under the flap of its tympanum. Then the Master handed the baby to Frikatim, who would care for it while Tmafekitch hunted and protected them.

Frikatim's snorkel waved proudly. He sat full up on his tail. Tmafekitch and even Rilla crowded close to stroke the back of the squealing baby. It was such a cute little-she! Rilla put a finger between the teeny flukes of its tail, and the baby flipped it in pleasure. Rilla stroked it again while the Master watched, inscrutable, and all of a sudden Rilla was crying at the little-she, at being with Tmafekitch again, at the beauty and excitement of a new life on Genji.

"Hello, Jane,—Daddy said.

Rilla tightened her grasp on his hand.

Mommy looked calm, which was more than she had looked the last time Rilla had visited her: She sat in a small room on the ship, a room even smaller than Rilla's partitioned cubby in the field dome. Two walls of the room were painted to look like a place Rilla had never seen. The sky was the wrong color, a sort of garish blue, and the plants were too tall and thin, and very strange-looking. Rilla shrank closer to Daddy.

He said, "I've brought her."

Mommy didn't even look at Rilla. But Rilla knew she saw her. Mommy hurt, that was why she didn't look at Rilla, and seeing Mommy again, remembering how Mommy had combed her hair and read her stories, Rilla hurt, too. So much she thought she couldn't stand it.

But all Mommy said was, "I've been reading the original exploration teams' journals, Bruce."

—Oh? Why is that? I thought you read only things set on Earth."

Mommy didn't say why. read Toshio Tatsuhiko, Yukiko Arama, Emile Esperanza, Nicole Washington—even Aaron Kammer. The presnug Aaron Kammer. The human."

Daddy's mouth turned down.

"And you know what?" Mommy said. "They all reflect the same concern. They all, cared so much about not causing ecological and cultural imbalance on Genji and Chujo. Were so fucking concerned about human contamination. And all the time we humans were completely, totally irrelevant. Don't you think that's funny?"

Daddy said, "I'm not sure it's true."

"Yes, you are. You know it. All the ecological balances, all the cultural disasters, were caused by the Murasakians themselves. Not by us. And now they're being corrected by the Murasakians themselves, and not all our science or religion or so-called 'art' or anything else has made the slightest difference to the whole weird process. Isn't that true?"

Daddy was silent.

—How does it feel to be completely irrelevant, Bruce? How do you stand it?"

Daddy glanced down at Rilla. "That's enough, Jane. Please don't start again.... "

"And do you know why we're irrelevant on Genji and Chujo? Because it's not our system, Bruce. We can't even eat the food, breathe most of the air—we don't belong here. Even our science doesn't belong here. Science observes things in order to effect beneficial change, Bruce. You knew that once. There is nothing we can ever change here. Nothing."

Daddy said, his voice thick, “Not again, Jane. I brought Rilla here to say good-bye. Just that.”

“Just that. ‘Just that.’ A First Conciliator you bought and paid for decides who gets custody of my daughter and you—”

“That’s not true. Jane! Not even a word of it!”

Rilla saw a place to say something. Holding on to Daddy’s hand very tight, she said, “I wanted to stay on Genji, Mommy. I wanted to. I told Mr. Dane that.”

Mommy didn’t say anything. Suddenly she hugged Rilla so tight Rilla couldn’t breathe. “Mommy! You’re hurting me!” ‘

Abruptly, Mommy let her go. Then she was pushing them out of the cabin, closing the door. “Go! Go! Take her!”

Daddy picked up Rilla, who was too old to be picked up, and ran down the ship corridor. He didn’t stop until he got to the shuttle bay, where he set her down, knelt, and brought his face close to hers. “Rilla—are you sure? There won’t be another ship from Earth for at least three years standard, you know. Are you sure?”

Rilla said, –I’m sure.”

“And I ... I know I’m not the best father for you, I get so caught up in my work “

Rilla hated it when he got like this. It was so much better when he just did the work, letting her do what she wanted to. She was all right, she had Tmafekitch and the other Ihrdizu.... When Daddy got like this, she almost despised him. That feeling frightened her. So she said coldly. “Don’t start again, Daddy. Please.”

After that, Daddy got quiet. Rilla felt herself grow quieter, too.. But it wasn’t until they were in the shuttle, returning to Genji, that she spoke again.

“Daddy—I didn’t tell Mommy that Mr. Dane isn’t going to stay on Genji. I was going to, because I thought .she might want to know who else was going to make the trip with her, but then I didn’t. Was that right?”

Daddy brushed his face with his hand. “That was right, Rilla.”

“Daddy—are we unimportant to Genji, like Mommy said?”

Daddy sucked in his cheeks. “Yes.”

“Then ... then why are you staying? I mean, I know why I’m staying, because I was born here”—Rita Byrne and Seigi Minoru and Cade Anson and me—“but why are you? If you’re completely unimportant to Genji?”

Bruce Johnson looked out the shuttle window. The great ship was in low orbit; beneath them Genji’s clouds swirled thickly, covering and uncovering an expanse of bleak sea, multicolored land.

“Because Genji is important to me.”

Suzu Tatsumi laid the bunch of flowers on Edward Philby’s grave, telling herself it was a ridiculous and sentimental thing to do. Certainly Philby would have thought so. The body, cremated, was not really buried under the rough stone marker, and the tide would come up in a few hours and carry away the

flowers anyway. But they were “new flowers,” the first the Chujoans had engineered, and Tatsumi wanted them to be there.

Jordan Dane waited in the flyer. She knew he still had much to do before both of them boarded the shuttle tomorrow for the ship, but he showed no sign of impatience. He was, she thought, always and forever, a patient man.

“All done?”

“In my grandmother’s house in Kyoto,” Tatsumi said as the flyer lifted, “was a painting on rice paper. It was very old, and she was very proud of it. The painting showed a mountain beside a sea. It was done in the old style: very spare, quick, light brush strokes. In the foreground were plum blossoms. I would stare at the painting for hours when I was a child. What I remember—although it is difficult to know if memory is accurate—is that the mountain and the sea and the trees filled me with peace. They seemed completely calm, caught forever in a moment of perfect balance.”

“I see,” Dane said.

“I think you do,” Tatsumi said, in her pretty voice. “Jordan, where will you go when we reach Earth?”

“I have eleven years to think about it,” he said. He did not look at her. “I have never seen Japan.”

“You would very much like Kyoto. At least, the Kyoto I remember. Of course, Japan may be very different now.”

“Do you expect it will be?”

“Not in its essence. That does not change. And of course there are excellent facilities for the writing of your book.”

“I would very much like Japan if you were there,” Dane said.

“It is very different from a habitat. Or from Genji.”

“I, would hope so,” Jordan said.

The flyer skimmed over a cliff and then over the sea. Below them drifted a mass of the new plankton the Masters were breeding, dull red. It was fast-growing, of high nourishment to several breeds of Genji sea life, genetically malleable. Bruce Johnson had exulted in the new plankton.

Suzy said neutrally, “I am twenty years your senior, Jordan.”

“I don’t think I should want to come to Kyoto if you were not.”

“It is not usual for a young man to value a ... a formal balance over, let us say, sexual youth. Or riotous adventure.—

Dane looked again at the drifting mass of plankton, which had not existed two months ago. At the bioloon floating in the air in the far distance, above Nighiand. At the manic report Bruce Johnson had turned in correlating QED fuzzy-logic deductions about the bioengineered spaceship, the Masters’ cities on Chujo, the genetic alteration of plankton and land fauna, the sudden vocabulary acquisition of the Ihrdizu, and his wife’s refusal to set foot on Genji. The report also covered the origin of carpet whales, which Johnson maintained had been created by the Chupchups. Three Japanese res’archers had filed angry and derisive counter-reports, calling Johnson’s speculations “irresponsible science-mongering,” a

term completely opaque to Dane. Maybe it was the translator. Johnson had counterattacked. Resource allocations for Malachiel Holden's carpet-whale studies were affected by the politics of this and six other scientific feuds dumped on the First Conciliator, with Holden's resources being cut by a third. Or increased by a third—the outcome was not yet clear. Holden and Byrne were screaming anyway, just in case. Three Quantists had declared the Chujoan return to be a "Return," capital R, and had set about building more Carrot temples. Two of the time artists had moved into a Carnot temple to hold what they called a "court of time": Dane had failed to find out exactly what this involved. The ship from Earth was bringing a mixed scientific and missionary team. The ship was called the Light of Allah, and most of the people aboard, after eleven years together, seemed to be engaged in blood feuds with each other.

"Riotous adventure," Dane repeated, and laughed, and reached for Suzy's hand.

After a moment she laughed, too.

The new First Conciliator stood ready to greet the first team of scientists off the shuttle. It was actually the shuttle belonging to the old ship still in orbit; apparently, the shuttle on the Light of Allah had been damaged in some unspecified accident in transit. The First Conciliator found it hard to picture this: surely not even a space-bored crew would have reason to try to make use of a shuttle while traveling at an acceleration slightly greater than one g? What could they do with it? These questions had not thus far been answered.

The shuttle touched down on the plain not far from the sub-Genji point. The main base on Chujo had, of course, been shifted to here after the startling events of eight months ago. And now that the new First Conciliator had been chosen, Dune Tiger Station would replace Okuma Base as the center of joint decisions for the humans in the Murasaki System.

If you could call what Miyuki made "decisions."

The shuttle air lock opened, and the first ten embarkees, in full suits, stepped onto the soil of Chujo. Miyuki moved forward, greeting first Captain Salah Mahjoub, then each member of the scientific team. Before greeting the last man in line, she braced herself.

Even through his faceplate the resemblance was startling. The old pictures she had seen ... just the same. The light, sandy hair, so out of place among the dark-complexioned team. The slightly crooked nose, gray eyes, too-small chin.

She said in English, "You are welcome to the Murasaki System, Mr. Kevin Kammer-Washington."

His eyes burned with his special interest in this place: the boulder-strewn valley with its deep crevasses, the self-managing fields, the ruins of the Chupchup city on the horizon.

"Thank you, First Conciliator," he said "I am very eager to become a part of Chujo."