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Farthest star

The saga of Cuckoo

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Part 1 Doomship

1

The place was called Sun One. It had begun as an asteroid, circling a young blue-white giant in the great dense cloud called the Orion Nebula. Over centuries it had been built upon, sheathed and tunnelled; and what it had become was the closest thing there was to a central headquarters of the loose association of intelligent races in the Galaxy that had made contact with one another.

In one of the inner shells two members of a very junior race were meeting. They came from Earth. They loved each other. They were young. They planned to marry. All these things made them curiosities to the races which possessed personal curiosity, and they were widely watched, heard or sensed as they came towards each other. They didn't mind. Ben Charles Pertin saw the girl and launched himself in a shallow three-percent gravity dive over the heads of a thing like a dragon, a creature composed mostly of a single great blue eye and a couple of scurrying collective creatures from one of the core stars. 'Sorry,' he cried down at them, caught the laughing girl's hand and stopped hard beside her.

"Ouch," she said, releasing a holdfast with her other hand. "I'd appreciate a little less enthusiasm next time."

He kissed her and took her arm. "It's part of the image," he said cheerfully. "You know what the chief of delegation says. Make them know we're here. Earth may be the newest planet in the association but it isn't going to be the least important. We have a duty to Earth to make ourselves known throughout the Galaxy, and a duty to the Galaxy to contribute our strength and our know-how."

"I think," said the girl, "that if you're going to talk like that you'd better buy me a drink."

At this shell of *Sun One* the curvature of the spherical surface they walked on was noticeably sharp. They found it was easier to leap than to stroll. To travel arm in arm, which is how Ben Charles Pertin chose to walk with his girl, required practice and a lot of discomfort - not only to them but to the other sentients in the concourse. Pertin and Zara shifted grips, so that each had an arm around the other's waist; then Pertin caught the holdfast webbing with his free hand and partly tugged, partly kicked them into the air. They shot past the dragonlike creature, narrowly missed a steelwork vertical strut, touched down again next to something that looked like a soft-bodied beetle with three dozen legs and were in sight of the little refreshment plat-form they liked.

Pertin said "Hi!" to a thing like a green bat as it flapped by. It hissed something shrill that his personal translator repeated into his ear as, "I recognize your identity, Ben Charles Pertin." The girl nodded, too, although all members of that particular race, which was called the T'Worlie, looked alike to her, and in any event the T'Worlies did not have the custom of nodding since they had no more neck than bats.

As they waited for traffic to clear, the girl said, "How did your meeting go?"

"About as usual. Things are all fouled up on the probe." He was watching a tumbling box-like robot that was coming towards them on a tangent, correcting its course with methodical jets of steam from the faces of its cubical body; but the tone of his voice made the girl look at him sharply.

“What is it, Ben?”

He gave her a caught-in-the-cookie-jar smile. “I’ll tell you about it when we sit down.”

“You’ll tell me now.”

“Well—” He hesitated, then cried, “All right, we can make it now!” But the girl wrapped her fingers around the webbing of the holdfast.

“Ben!”

He relaxed and looked at her. He didn’t say anything, but he didn’t have to.

“Ben! Not again!”

He said defensively, “I have to, Zara. The other one’s dying. There’s nobody from Earth on the probe now to represent us. So I agreed to carry the ball.”

He looked appraisingly at the traffic of aliens, then back at her; then he looked at her with a sudden shock of surprise. The girl looked as if she had come very close to crying.

“Oh, Zara,” he said, half-touched and half-annoyed. “What are you making a big thing about? It’s nothing we haven’t done before.”

“I know,” she said, and blinked hard. “It’s only - well, it’s sort of silly. But I hate the idea of your dying out there while we’re on our honeymoon.”

Pertin found that he was blinking himself; he was touched. He patted the girl’s hand and said seriously, “Honey, one of the traits I like best in you is that you’re not afraid to be sentimental at the right time. Don’t knock it. I love you for it. Now Let’s go get that drink.”

The little cafe was nearly empty. That was one of the things they liked about it. It had actual waiters, purchased people. They didn’t have much personality to display, but they were actually human, genetically speaking. Pertin and his fiancée enjoyed ordering in their rudimentary Italian - not their own language, to be sure, but at least a human language, and one for which they did not need the Pmal translators.

Pertin pulled his feet up, crossed them in the air and settled gently on to his chair. They looked about while waiting for their drinks to be brought. Pertin had been on *Sun One* for more than two years now, the girl for several months. Even so, familiarity had not dulled their interest in the place where they were stationed or in the work they did there. The girl was a news- writer, broadcasting to Earth every week on the stereo stage.

Pertin was an engineer. His job on *Sun One* didn’t involve much engineering. It did involve an interesting mixture of skills. He functioned partly as a sort of legalized spy and partly as a goodwill ambassador from Earth to the rest of the universe.

The mere fact that a job like this existed was still secretly thrilling to Ben Charles Pertin. He was not yet thirty. Even so, he was old enough to remember the time when the human race thought it was alone in the Galaxy.

Space travel itself was not new. The old “nations” had put up their chemical rockets and sent them chugging to Venus, Mars and the Moon in his grandfather’s time. They had looked for life, and come up empty every time. Nuclear probes a generation later investigated the outer planets, the satellites and even the asteroids, with the same result. No life. By the time Ben was twelve years old, the juice had run out of space travel.

There were still a lot of on-going projects, such as the close-orbiting satellites that photomapped the Earth and relayed TV programmes from Rangoon to Rochester and back. An occasional plodding probe was sent out to sample a comet's gases or measure the solar flux. And of course there was always the Farside base on the Moon, where radio astronomy had retreated when the world's communications systems had ruined reception for every ground-based dish. But no excitement was generated by any of that. There was not even any interest. If some pollster had sampled the Earth's billions with a question like, "Do you think intelligent life exists elsewhere in the universe?", he would have been likely to receive as a general response, "Don't know; don't care."

Then came Contact.

It happened just as Ben Pertin was turning thirteen. Something had been found on Pluto. An artifact, half-buried under Pluto's mirror of ice. The Earth suddenly looked outward again. The stereo stages were full of it: the first fumbling attempts to patch it together, the first daring experiment at putting power through it. Everybody talked about it. Ben and his parents watched the glowing figures on their stage, enthralled. Their evening meals grew cold because they forgot to eat. In school, the kids made the discovery the main subject of every class.

And when the ancient communicator came to life and the first alien face peered out of its screen and looked into the face of a human from Earth, the world went mad.

"I don't want to hear any more of that cockamamie Earthman's Burden talk," said Zara Doy, "I heard too much of it when I was a kid. I don't want you going out to die. Stay here with me."

Pertin said fondly, "You're sweet, Zara. But this is important. The situation on the probe is exploding; the beings are fighting. They're dying uselessly. I can't back out just for some sentimental ideas of—"

"Sentimental be damned! Look. When we get married I want you right in bed with me, all of you. I don't want to be thinking about part of you dying way off in nowhere!"

"I'll be with you, honey. All of me."

"You know what I mean," she said angrily.

He hesitated. The last thing he wanted was to quarrel with his fiancée two days before they were to get married - and less than two days before he kept his promise to go to the probe ship. He rubbed his troth ring and said, "Zara, I have to go to the probe."

First, I said I would; and the boss has passed the word to all the other top brass on Sun One. Second, it's important. It's not "Earthman's Burden", It's simple logic. We're new and pretty far behind, compared to the Scorpions or the methane crowd or the T'Worlie. But look what We've done already. We have Earth people on every major planet, working in every big project taking part in everything that's happening. The others are getting used to us. They consult us now. If I back out, who else is there to go? Earth won't be represented—"

"I don't care."

"It's not as if I haven't done it before—"

"The other time you went we weren't going to be married,'the girl responded fiercely.

"All right, that's true. Now I owe you something. But I owe our planet something too. We're just beginning to contribute our share of leadership in the Galaxy, Zara. I mean, look at that waiter! Half the purchased people around are human beings, now. When the

nonviables edit a copy for Sun One, say, what shape do they copy? Human! The human shape is as familiar in the Galaxy now as the Sheliaks - and all in twenty years!"

Zara sucked at the last of her drink and put it down in its cage. She stared at the waiter, who was smoking a cigarette and thinking whatever thoughts a blanked-out personality was allowed to think; then she shook her head.

"I'll lay it out nice and orderly like an engineer for you, Ben" she said. "First, if they copy human shape, is it because they respect us or because they have some crazy methane sense of humour? Second, if they buy our convicts for purchased people, likely enough it's because we have more criminals to sell. Third, I don't like the whole idea of Earth trying to dominate the Galaxy. Fourth—"

"Dominate! I said "leadership". It's not the same thing at all."

"It's a prerequisite. Not sufficient, but necessary. Fourth, I still hate it all on personal grounds, and I'm not talking about idealism, I'm talking about sex. I'll get over it. I know that. But it's going to take some of the joy out of going to bed with you, Ben, thinking that at the same time somewhere else you're getting eaten by a Sheliak or dying of radiation burn. I'm sorry it's so, but it's so."

Ben said doubtfully, after a moment, "Would it be better if we postponed the wedding a little bit?"

"I don't know. Let me think."

He waited, finished his drink, looked cautiously at the girl. There was no anger or misery on her pretty face; she was simply staring thoughtfully out at the other beings in the concourse.

Pertin beckoned to the waiter and paid the bill. "They thank you," said the waiter, staring appraisingly at Pertin and the girl.

"Will there be anything else?"

"No, we're going." But still the girl sat there. Then she sighed, and smiled at him.

"Well. You want to go pretty badly. Feeling the way you do, I suppose you ought to go. I won't stop you, Ben, and it's silly to put off getting married. But there is one thing I want you to do."

He waited warily.

"Give me your ring. No, just to hold. When you're finished going to the probe I'll give it back to you. But I don't want you wearing my ring when you die."

Last-minute briefing was in the tachyon transport chamber, out at the far shell of Sun One, and heavily shielded. Dr Gerald York Bielowitz checked Pertin out himself. He was a methodical man - one of the reasons he was head of the mission to Sun One: and he read from a sound-scripted list.

"We've got about ten minutes, Ben Charles. Let's see. Object Lambda. You know as much about it as I do. It's anomalous, it's exciting, the only way to find out about it is this probe, and it's in Earth's interest to make the probe succeed."

He dropped his eyes to the page and went on: "There's no possibility of survival on the probe, of course, and this has undoubtedly had some effect on the psyches of all the beings there. To the extent they have what we can map as psyches, I mean."

But in my opinion, the physical problems have caused the trouble. Some of the beings are dying - your predecessor among them, of course. Others are functioning poorly, probably because of ionization interference with their nervous systems - or whatever corresponds to nervous systems.

"At any rate," he said, checking off another point, "the beings on the probe no longer constitute an orderly system. There's violence. Some of the deaths are from fights or murders. This is seriously interfering with the operation of the probe, and threatening its very success. You know how important that is. If we blow this, it's more than a hundred years before we get another chance.

"And finally," he said, folding the list and putting it in his sporran, "your account here will be credited with double-rate pay for your services on the probe. Your equipment will follow, along with Doc Chimp here." He nodded civilly to the hairy little handyman who crouched next to Pertin. "And good luck to you both!"

"Thank you, Gerald York," said Pertin gravely. He stepped up to the transport portal, waited for the signal and entered, giving a half wave to Bielowitz as the door closed behind him.

This was the fourth time he had found himself in a tachyon transporter box, or at least the fourth time that he remembered,; or that it had actually happened to him. They all looked about the same. On the inside they were featureless except for what looked like studded nail heads almost completely covering each of the six interior surfaces. He stood there for a moment, and felt nothing.

But something was going on. The sensors were counting, locating and identifying every atom in his body, measuring their bonds to adjacent atoms, charting them in a precise three-dimensional matrix. The information obtained they encoded into a string of binary numbers; whereupon the great tachyon generators glowed into life, transmitting the numbers at a billibit per second in the direction of a point outside the farthest spiral arm of the Galaxy. It took only moments.

Then Ben Charles Pertin stepped out of the box and shook hands with his head of mission. "You're the best man I've got," said Bielowitz solemnly. "Thanks."

Pertin then went back to his office and worked through the rest of the afternoon. He left a little early to meet his fiancée and take her to dinner. Over the coffee she returned his troth ring to him.

2

At about the same time that Ben Charles Pertin was putting his ring back on his finger, as much as time at two points separated by relativistic distances and velocities can be called the 'same', Ben James Pertin pushed his way out of another, almost identical box on the probe ship.

He stopped just outside the portal, moving slightly to allow it to close behind him. His expression was grim. "Lucked out," he said aloud, looking around the unfamiliar chamber.

There was no one to hear, or to see the bitter and despondent look on his face. The chamber was deserted. The probe was in free fall, and Pertin floated slowly away from the transport; but nothing else was floating in the room. There was no litter, no sign that any other being of any sort was within thousands of light-years and, as he listened, not even any sound.

He swore softly to himself and twisted his body around to face the crated personal effects that were nudging their way out of the box. There wasn't a great deal to come: some tapes; some changes of clothing, personal items. All his belongings were in a couple of crates, and at the end of the string of transmissions came his companion on the mission, Doc Chimp.

Doc Chimp thrust out a long arm and caught the handle of the door as he went by. He hung there for a moment, staring at his environment with an expression that was a parody of Pertin's own. "Oh, wow, Ben Charles," he said sadly. "What a place."

"It'll be "Ben James", I think," said Pertin.

"Sure," said Doc Chimp dismally. "Me, I'm not going to bother. If you want to call me something different, call me stupid."

Doc Chimp was Earthborn, but he was not human. He was five feet three inches tall, weighed more than two hundred pounds and, in high-G environments, habitually walked on feet and knuckles. His parents had been chimpanzees. But Doc Chimp was something different.

For one thing, he had a sense of humour. He reflected it in the clothes he wore. Over his hairy barrel chest he wore a little red vest, open, with the coarse black fur sprouting through. He didn't need it for comfort or for modesty; he wore it to please his own sense of the comic, and for pockets to hold his automatic translator, the key to his private suitcase and a supply of macadamia nuts, of which he was very fond. For modesty he wore shiny brown lederhosen. On his head he sported a kepi with a sand veil around sides and back, and over its visor a bright green plume.

Even the plume was sagging dejectedly as he said, "I think I'm going to hate this place, Ben James."

"We didn't come here to have fun. Where the hell is everybody?"

"Don't know, Ben James. Can't say."

"Stow our stuff then. This thing won't stay in free fall long; we'd better find somebody before it starts firing again."

"Certainly, Ben James. But there's somebody coming now." Pertin said, startled: "I don't hear anything."

"Neither do I. But I smell it. It's a T'Worlie, coming fast."

The probe ship was T'Worlie property, but fortunately for the other races of the Galaxy the T'Worlies didn't have a very strong territorial imperative.

They had been civilized for a long, long time. They were an inquisitive race, in their unhurried way, and no doubt that was why they had been sending their probes out for hundreds of generations. Little T'Worlie rockets had radiated in all directions from their mother star, some of them aimed at other stars, some at nothing closer than the Great Nebula in Andromeda, ten million years' travel time away.

Only a race like that, deploying probes as lavishly and patiently as it had, could have discovered the curious astronomical object called Lambda. No other race would have been in a position to do it. Sirians, with their limited time-binding capacities that reached no more than a week into the future, wouldn't have bothered. Nothing that promised a remote payoff interested the Sirians at all - which made them unattractive partners, but inoffensive foes. Humans of course had no chance; their technology wasn't up to the job, and the farthest terrestrial probe was still climbing towards the turnover point on its now senseless journey towards *40 Eridani A*.

But the T'Worlies thought long, slow thoughts, and they were gently but persistently curious about everything. If their race lived long enough it would learn everything there was to know.

None of them seemed to mind that no T'Worlie now alive would be present to learn it.

Lambda had been discovered first by an unmanned T'Worlie scout ship and reported in a routine synoptic survey. It attracted no attention at all. When first observed its great distance and low luminosity put it at the very threshold of detectability, and the traits which made it unique had not been noted.

Subsequent observations attracted more attention. Its weak spectral lines seemed to shift towards the violet, rather than the red - which is to say, it was moving towards the Galaxy instead of away from it. Curious. But the lines were so very weak, the point so very distant, and the orderly T'Worlies had many other things on their agenda to investigate.

Then, by accident, another scout turned up the same object in a survey.

It might not have been recognized if the computers of the T'Worlies had not been so patient and painstaking. The second scout had been launched five thousand years earlier, its vector several degrees away. From its point of view, Object Lambda was in a wholly different part of the sky, and its rate of approach, indicated by the spectral shift, quite different.

But the computers had sensed a possible match and had clucked over the figures until they confirmed it. There existed a specific, if hypothetical, orbit and velocity which, seen from those two scouts at those recorded times, would have given exactly those readings.

From the estimated elements the computers made a prediction. They requested a special observation from still a third unmanned scout. Lo! It turned out as they had predicted.

Object Lambda was not more than twenty thousand light-years from the edge of the Galaxy, and was approaching it at about one sixth of light-speed.

At this point the T'Worlies announced their discovery to the Galactic civilization at large, and began a study of their existing drones in that general part of space.

The T'Worlie drones were as small as interstellar probes can be made: a scoop, a hydrogen ram, some instruments and a tachyon installation. The T'Worlies had been launching them, thousands at a time, for tens of thousands of years. As they had never invented war, they were able to accumulate large quantities of surplus capital, and so the probes were not at first a particularly expensive project for them. Like most early-industrial races, they had energy to burn. They burned it. Their planet was largely water covered; though they looked like bats, they were somewhat more analogous to flying fish. The water was rich in D²O, and they spent its fusion energies profligately.

The T'Worlie drone model was standardized early. A programme was set up under which each drone, upon reaching a point suitably distant from all others, flashed a tachyonic signal to the T'Worlie planet, whereupon the tachyon transmitters scanned, encoded and transmitted whole new drones to the mother drone's unit. As each new drone flashed into being, it signalled in to the T'Worlie planet, was given a course and programme of its own and went onward. The effect was that of an enormous globe of drones, at the end thousands of millions of them, expanding outward like the shell of a dead super-nova.

The programme was fully automatic and economical of everything but the energy eaten up by the tachyon transmitters, and for ten thousand years there seemed to be an endless supply of that.

In the end even the T'Worlies began to realize that their energy resources, though huge, were not infinite. The drone programme was cut to a trickle. But it was never stopped, and the great swelling bubble of drone ships expanded out, into globular clusters, out towards the neighbouring galaxies, along the spiral arms, in towards the core of the Milky Way itself. It was a T'Worlie drone that had buried itself on Pluto and been found by the exploration from Earth. In fact, T'Worlie drones had brought into the Galactic society at least a hundred races at one time or another, almost half of the total so far located.

Another race might have thought of using that fact to establish dominance for itself, but the T'Worlies didn't think that way. They had never invented empires, either. So when the T'Worlies began to be deeply interested in Object Lambda it was easy enough to find some hundreds of drones on courses and at points that were not too remote from it.

The next job for the T'Worlie computers was calculating which of these drones was on the course that would involve least time and energy in diverting it to the neighbourhood of Lambda, with its huge Galaxy-ward velocity. Fortunately a handful of drones in that section had been redirected inward long before, to fill gaps in the global screen. Among them was one that was, by the best of luck, on a course that could match Lambda in less than five years.

Alter that there was no problem. The drone's matter receiver was put to work giving birth to automatic tools, hull sections, drive units, instruments, finally people. The tools went to work, assembling the hull sections, installing the drives, making room for the people. What had been a tiny kick-ram, no bigger than Earth's early Apollo capsule, was transformed and expanded into a thousand-metre vessel with room for a crew of several hundred.

There was, to be sure, one problem.

The rebuilt T'Worlie ship, now named *Aurora*, was big; but it needed to be big. It did not possess a great deal of surplus mass.

The ship was driven by the sequential explosion of hydrogen fusion charges, directional in a cone-shaped blast against a great battering plate at its base. Not much of the ionizing radiation from the fusion explosions seeped through the base plate, but enough did so that the members of the crew were constantly bathed in it.

T'Worlie and Sheliaks, purchased people and Boaty-bits, robots and humans - all responded to this in their individual and idiosyncratic racial ways. But few complex chemical or electronic processes can operate without damage in the presence of ionizing radiation. It didn't matter who they were. In the long run it came to much the same for all of them. They died.

Pertin and the chimp scrambled to the corridor entrance and peered out. The vinegary T'Worlie smell was strong now, and they could hear the sounds of something happening outside: a puncture-tyre hiss, a faint high-pitched singing.

A circus procession was sailing towards them down the centre of the corridor. First was a T'Worlie, a bat's head on butterfly body, no bigger than a pigeon but strong enough to be dragging with it a kitten-sized furry creature with enormous saucer eyes as it flew with powerful strokes of its green-spotted filmy wings. Behind the T'Worlie and the being it carried was a glittering cloud of steel-blue particles, like a swarm of gnats in the sun; and behind them, coming fast but decelerating strongly because of its mass, the square-edged form of a Scorpien robot, all fore jets pumping reaction mass.

The T'Worlie made its shrill whistling sounds, and the Pmal translator on Pertin's shoulder rattled into life. "I identify you as a Pertin," it said with mechanical precision. "I propose you transfer at once to high-G accommodations suitable to your structure, mode urgent."

"Why, Nimmie!" cried Ben James, suddenly, inexplicably, foolishly glad. "It's good to see you."

The T'Worlie braked with its filmy wings, and the five pattered eyes studied Pertin. "Verify your statement of identity" the Pmal translator rattled in his ear. "Query implications. Request clarification."

"Why, it's me, Ben Ch— Ben James Pertin. From Sun One. Why, just yesterday I saw you in the social concourse, remember?" But he stopped; this copy of the T'Worlie he had known would not remember.

The T'Worlie hesitated. It was some Nimmie or other, Pertin was sure; the key to recognizing T'Worlies was not the five eyes, or the small sphincter mouth with its cat's-whisker vibrissae, but the patterns on the wings. Green spots predominating on a pale yellow background; five of the bigger spots arranged in a sort of wobbly letter W, like the constellation Cassiopeia from Earth; yes, it was Nimmie, all rights Pertin knew. But perhaps a Nimmie he had never met, in some different line of descent.

The vinegary smell deepened; it was a sign of polite cogitation in a T'Worlie, like a human being's Hmmm. But Nimmie did not respond exactly. He was distracted by the swarm of tiny beings, who swept into the tachyon transport room, swirled around Pertin and the chimp and re-formed under the T'Worlie's wings.

The kitten-like creature spoke, with a voice like a purr. The translator rendered it as: "No time kidding around, get hell out!"

And the T'Worlie concurred:

"Mode urgent. Accept transportation via robot. Your physical safety at risk!"

Doc Chimp chattered: I told you I wasn't going to like this place, Ben James. It isn't safe. Of course, I'm only a monkey, so it doesn't matter much about me. It's you I worry about."

"You're an ape," Pertin corrected automatically, his brain concentrating on what the T'Worlie had said.

"Sure, but an ape that knows what isn't safe. Come on, Ben James! Let's do like Bat-Ears says and split!"

Suddenly, the decision was taken from Pertin. The Scorpion robot hissed slowly by, still decelerating, came to a stop, reversed itself and began to pick up momentum for the return. And as it passed Pertin and Doc Chimp it simply caught them up, each under a silvery tentacle, and bore them away. In reverse order the procession steamed away: first the robot with the two terrestrial primates, then the swarm of bit-creatures, then the T'Worlie and its passenger.

The probe was powered by huge nuclear thrusters; the power was only off for short periods, long enough to permit instrument readings or other work that could not be carried on during deceleration times, and the rest of the time the entire environment suffered under a surging uneven pulsing drive that averaged nearly seven gravities.

The welcoming-and-transport committee barely got them to a place of refuge before the thrusters started again. The Boaty-Bits had darted away at the first warning white-noise blast; they could not operate at all under thrust and had to find safety lest they be stepped on. The T'Worlie and his passenger were next to go, leaving only the robot to see to tucking Pertin and Doc Chimp in. The robot had no particular objection to high gravity - Pertin had noticed that on the trip from the tachyon chamber; when the robot had to change direction it simply braced itself with a few of the steel-coil tentacles, stopped

against whatever was in the way and pushed off in another direction. The sensation for Pertin was like being tossed around at the end of a cracking whip, but he survived it.

The thrusting started before the robot had finished sealing their cocoons, and it was even worse than the ride. The cocoons, meant to protect them against the thrust, were tailor-made to their dimensions, equipped with the best of springing devices and every comfort. But there was no such thing as antigravity, and that was what was needed.

The robot tarried for a moment. It could no longer jet about, but its tentacles held it easily off the floor, octopus-like. As the thrusts came the appendages gave gently, then returned to position.

The robot seemed to be trying to communicate. Pertin, looking out of the cocoon faceplate, shrugged and spread his hands. One Scorpion looked like another, but if this one had come from *Sun One* it might recognize the human gesture. The trouble was, there was no way to tell whether it was responding to it.

Then the Pmal crackled into life: “—not move. Prerequisite explanations to you. I am repeating this on all comm frequencies, will. Imperative you not move. Prerequisite—”

The Pmal faded again, as the robot evidently shifted to another possible frequency. “All right,” said Pertin, “We’ll wait”

But whether the robot understood him or not he could not say; it rested there on its tentacles, swaying under the thrust for a few moments more, and then slithered undulatingly away. The probe was decelerating furiously now: a roller coaster ride, multiplied by a hundred. There was a lot more noise than Pertin had expected, both the distant rumble of the nuclear explosions and the screeching of the torsion-bar shock absorbers that did their best to level out the thrust. But the cocoon was designed for it.

“Doc!” he called. “Can you hear me?”

The chimp’s cocoon was only yards away, but the *thuuud-screech!* drowned out all other sounds. Pertin stared around.

The room was half machine. Bright metal valves, grey plastic tubes coiling like dead entrails, coloured screens where enigmatic symbols flickered and vanished. The walls were a sick, off-colour green. No human would have designed a room like this, but of course it had not been designed for humans in the first place. It was a standard T’Worlie cocoon container; modified to take terrestrials; and the T’Worlies merely allowed them to use it.

The *thuuud-screech* went on and on. Experimenting with the cocoon, Pertin discovered that it would meter an anaesthetic dose into his veins, or even a selective analgesic to deaden the auditory nerve for a time to block out the remorseless nuclear thunder. But he didn’t want to sleep, and he wasn’t tired; he wanted to get about his business. When your time is running out, he thought, you don’t like to lose any of it.

Then he discovered that the cocoon had a built-in stereo stage.

The apparatus was not wholly familiar, but with any luck he should be able to reach Doc Chimp, at least. His first attempt was not a success. He gently turned a knurled pointer under the hollow silver hemisphere of the stage and was delighted to see it fill with the shining silver mist that indicated it was operating.

But when the mist abruptly condensed it was to show the image of a nude blonde girl. “Mr Pertin, sir,” she carolled sweetly, “welcome aboard! Tonight for your entertainment, sir, you may watch me star in *The Belle of Bellatrix*. A thriller-drama of the love of a human beauty for a mutated alien and its fatal consequences. Feel the fear of the terrified girl! Share the wrath of her human lover! Feel the coils of the monster around her! Taste

its dying blood! All these available by using the sen-cat coils in the small cabinet by your right hand. We have many other stereo-stage fiches, Mr Pertin, and—”

He finally got that fiche turned off, and the nude blonde vanished, still smiling. She dissipated as the camera zoomed in at her until at the end all that was left was a Cheshire-cat smile and the memory of her pale, slim figure.

Then the stereo stage blinked, swirled with colour, solidified and Doc Chimp's homely face was staring out at him.

“Got you first time,” cried Pertin, pleased. “I didn't think I would be so lucky.”

“You weren't,” said the chimp. “I called you. I want to volunteer for something.” The chimpanzee face looked subdued.

Pertin said, “What?”

“I think I ought to take a look around,” said Doc Chimp sadly, “God knows I don't want to. But most of the beings will be tied down to pressure cocoons and I'm not. Quite.”

“Good idea,” said Pertin, a little surprised. He hadn't known the chimp well on *Sun One* - it wasn't that he was prejudiced against mutated animals, but of course they didn't have much in common. But he had an impression of Doc Chimp's personality that was at variance with the act of volunteering for a solitary excursion into what might be trouble. Humorous, pleasure seeking, a little lazy - that's how he would have described the chimp. “And thanks,” he added. “Meanwhile I'll just send back a report to Sun One, if I can figure out how to use this stereo stage.”

“Ah,” said Doc Chimp, the mocking light in his eyes again, “allow me to instruct you, mighty human. You know, I figured you'd be too involved with high-level considerations to take much interest in hardware. So I checked out all the instrumentation with the T'Worlies on *Sun One* before we left.”

Pertin needed only a few minutes to learn to operate the component in his cocoon; it was not, after all, anything but a stereo stage, and they were common all over the Galaxy. Then he lifted himself on one elbow against the surging thrusts of the drive, the cocoon's self-adjusting circuits buzzing busily to try to compensate for his unusual position; and he watched the chimp cautiously lever himself over the side of his own cocoon - timing his movements to the surging of the drive - drop clumsily to the floor, mutter to himself angrily for a moment and then slowly, painfully lumber off on all fours. He did not look back.

Pertin felt curiously better, as if he had discovered a friend where he had expected only an inadequate tool. He worked the controls of the stereo stage, got himself a circuit through to the recording fiches of the tachyon communicator and spoke:

“This is Ben James Pertin,” he said, “reporting in to Sun One. Doc Chimp and I have arrived safely. There was no apparent problem from the transmission; at least, we look all right, we're breathing, our hearts are working. Whether our brains are scrambled or not, I could not say. No more than when we volunteered for this, anyway, I'd guess. We have seen very little of the probe, have contacted only a few of the personnel; but in general the situation appears much as we understood it. At present I am in an acceleration couch, waiting for the next period of free fall for further investigation. Doc Chimp, who is performing very well and deserves credit, has voluntarily left on a scouting mission.

“I'll report again when I have something to say,” he finished, “and - personal to Ben Charles Pertin: have a good time on my honeymoon.”

He snapped off the stage before he could decide to erase the last part of the message.

In spite of the best efforts of the cocoon, his kidneys were beginning to feel bruised. The noise was even more of a problem. Efficient soundproofing kept it out of the cocoon as noise - at least, as airborne vibrations - but there was too much of it, the amplitude too great, to be shut out entirely; and it seeped through as a continual thunder and squeal.

Pertin shut it out of his mind, thought of sleep, decided to brush up on his knowledge of the "hardware".

His first attempt at the fiche library of the stereo stage was only half successful. He just managed to avert the appearance of the bare-skinned blonde and found he had secured a record transmitted by another member of the crew - race unspecified - apparently for a sort of public stereo-stage broadcast on its home planet. He shut out of his mind the public broadcaster he should have been getting ready to marry about this time - some thousands of light-years away, was getting ready to marry - and discovered that the name of the vessel was the *Aurora*, or *Dawn* - the sound was of course different in the T'Worlie tongue, and they had named it; but it had the same shared meanings of new day and bright glowing promise. He discovered that it had only limited facilities for recreation - well, he had known that. There were tape-fiche libraries for almost every known race and some special high-pressure atmosphere chambers for a few of the exotics. That was it.

This was not exactly what he wanted, so he tried again. But instead of getting a fiche on the ship itself, he got one on its mission, evidently a briefing record dubbed for humans. The narration was by a man Pertin recognized, about sixty, plump, freckled; he had been a minor functionary on Sun One. He spoke in a high-pitched voice, smiling emptily at the stereo pickup.

"We will show you all that is known about Object Lambda. First we will locate it, as it would be seen from Earth if visible at that distance."

Behind him another stereo-stage tank glowed, shimmered and filled with a universe of stars. Two of the brighter ones pulsed to call attention to themselves as the man spoke.

"Those stars are Benetnasch, in Ursa Major, and Cor Caroli, in Canes Venatici. Those faint stars over there—" as he spoke a faint line of light ran around an area of the tank, enclosing it in a square - "are in Coma Berenices, near the north galactic pole. Now we'll take a closer look."

Benetnasch and Cor Caroli swam aside. The faint stars of Coma Berenices grew brighter, spreading apart, as the whole field of stars seemed to move. To Ben James Pertin it felt as if he were plunging head-on into a sea of stars. The bright points fled out of the sides of the stage, and the few remaining ones became brighter, until only a few were left, and beyond them ghostly faint blurs that were no longer part of the Milky Way but galaxies in their own right.

Then the illusion of motion stopped.

Another square of light formed around a patch of blackness in the centre of the stage, indistinguishable from the emptiness around it.

The man said, "Now we've reached the limits of Sol-orbiting instruments. Object Lambda is at the centre of that square, but it is invisible. It is slightly better in the far infra-red."

The pattern of stars shimmered; some became brighter, some dimmer, and in the centre of the square there was what might have been a faint and shapeless glow.

"This is not instantaneous," explained the lecturer. "It's long exposure and image-intensified. It would never have been detected in routine sweeps from Sol-based instruments. Even the T'Worlie scouts first detected it only because of the chance occultation of some stars in the Milky Way itself, seen from beyond. What we will show you next is not an actual

observation but an artifact as it would look from Earth, as deduced from all available observations.”

The object brightened half a dozen magnitudes as he spoke.

“As you see, it has a sort of tipped-disc shape, like certain classifications of external galaxies. However, that’s not what it is. First of all, it is far too small, perhaps only two or three AU. Second, its spectrum is wrong.

“At its apparent distance, as determined by its angular diameter - as if it were indeed a galaxy - it should be receding at a major fraction of the speed of light. Of course, we know from triangulation from the T’Worlie ships that that distance is wrong by a good many orders of magnitude. But according to its spectrum displacement, it is actually approaching the Milky Way at nearly relativistic speeds.”

The image blurred and disappeared, and the plump human was standing there by himself. He said with satisfaction, “The T’Worlie scout has confirmed the speed as accurate, in the range of fifty thousand kps. Its position, relative to Earth, is some thirty thousand light-years from Sol, in the direction of a point near the northern fringe of Coma Berenices. It is not an object from our galaxy. There are no spiral arms in that direction, nor many isolated stars or clusters much nearer than Sol itself.

“The T’Worlies back-plotted its position from all observations of their drones, as recorded over the past several thousand years. Most of the data is ambiguous, but they did establish a probable line of flight. Their hope was to find a galaxy from which the object might have been ejected, and then to try to discover the reason for its high velocity. The T’Worlies were only partly successful - I should say, only possibly successful. No such galaxy was detected. They did, however, find scattered star swarms which they believe to be the fragments of a galaxy that collapsed and then exploded more than half a billion years ago. It is the present working hypothesis that Object Lambda was ejected from that galaxy - by what means we cannot say.”

The man’s expression became enthusiastic. “Because of the anomalous nature of Object Lambda,” he said, “the all-race conference on *Sun One* determined to transmit a full-size scout ship through the drone equipment, and to staff it with a crew of volunteers of all races.” Volunteers thought Pertin, grimacing. “And after considerable effort in negotiating, it was agreed to include Earth humans as part of the crew. The political implications of this step are of enormous consequence and reflect the true coming of age of Earth humanity in the Galaxy-wide confraternity of civilized peoples. Thank you,” he said, bowed, smiled and disappeared as the fiche came to an end.

Not a minute too soon, thought Pertin. A little more of that and he would have been ill. The cocoon had a fine built-in waste handling system, but there was no sense in overloading it.

He began to see what Zara had been talking about when she accused him of an “Earthman’s Burden” complex. It sounded pompous, stupid and faintly threatening, he realized, at least as expressed by the man in the briefing fiche. Pertin tried to get his mind off that track - because he didn’t want to question the cause for which he was eventually going to die, and because above all he didn’t want to think about Zara Doy. He was in the middle of trying to get The Belle of Bellatrix back on the stage when he became aware that something was scratching angrily at his cocoon.

For a moment he thought he was dreaming. He glanced back at the fading nude on the screen, then outside at the nude girl who stood there.

But Pertin was a pretty superior type, and he oriented himself quickly. It was no girl. It was not even human. It was a female young Earth person in shape, but the stuff of which the shape was constructed was not flesh and blood. It was silvery and bright, with a metallic hue. The eyes were orange and glowing. The hair was not separate tendrils; it

was a single solid piece, sculptured slightly for cosmetic effect. The creature was, he realized, an "edited" version of some methane-breather or one of even more exotic chemistry, some being who was structurally nonviable in oxygen-bearing air and had had itself transmitted in an altered form to take up its duties on *Aurora*. And it was holding a scrap of what looked like paper.

It was not right-side up. Pertin gestured, and finally the girl understood and rotated what she held until he could read its message. Then he signalled her to stop. It said: Sorry, Ben James, but you've got to get out of there. Things are worse than we thought. Aphrodite here will carry you to me. They guarantee she won't drop you and squash you; and, actually, Ben James, it seems to be a matter of life and death.
Doc.

The girl did not speak, but the orange eyes blazed imperatively, and the hands beckoned.

Pertin sighed, and opened the lid of his cocoon. "Okay, Aphrodite," he said. "Carry me off."

Astonishingly, being carried by the pseudogirl was actually worse than being toted by the robot; but this trip was slower, and Pertin had a chance to see something of the *Aurora*. It was roughly cone-shaped. At the nose and through the midsection were living quarters for the several score individuals who manned the ship. Since the crew varied widely, they needed a good deal of room. Space had been provided for methane-dwellers, space-flyers and cold creatures as well as for the more common forms based on carbon, oxygen and water. However, most of the non-viables either stayed home or sent proxies or edited copies, so these spaces were mostly empty. "Below" the living quarters and the space for the exotics were the hardware - instrument sections. Below them still - in the sense of being sternward, towards the thrusters - was a layer of dense liquid for a radiation shield. It wasn't very effective; but of course, Pertin thought, the shield didn't have to be effective enough to keep them alive forever since there was neither hope for nor point in that. Below the shield was the tachyon transmission deck, where Pertin and the chimp had arrived. And beyond that deck, the shock-absorbing gear and thrusters. Since the *Aurora* was decelerating, it happened that the 'stern' of the ship came first in line of flight; but that made little difference to anyone aboard. It was "down". And down was the direction they were going. The pseudogirl had wrapped Pertin in a thick blanket of something like heavy-duty plastic foam. It was not as good as his cocoon by a long shot, but it kept him from dying of the ceaseless grinding changes in gravity as the thrusters shoved and the "girl" levered herself down a ladder-like series of projecting rods. She did not speak, nor acknowledge Pertin's efforts to speak to her. Either there was something wrong with his Pmal translator, or she simply was not a conversationalist. But she was considerate enough, and when they reached the instrument deck Pertin was bruised and sick, but alive.

"Ben James!" cried a familiar voice. "I told you Aphrodite would get you here all right!"

Doc Chimp, thin lips grinning widely, scrambled over to help the silvery girl put him down, propping him against a sloping bulkhead so he could look around. They were worth looking at, a nightmare crew if he ever saw one. Besides the pseudogirl and the mutated chimp, there was a Sheliak in its high-G mode, looking like a flattened baker's bun on the deck, another web of plastic foam that hid an apparently human-sized figure, and a row of small cocoons. Two were empty; the third contained a T'Worlie. From a speaker outside the cocoon a T'Worlie voice whistled a greeting and Pertin's Pmal translated: "I recognize your identity, Ben James Pertin. It is advantageous to all of us that you are here."

"Thanks, Nummie," said Pertin, but he was staring at the other plastic wrappings. A human being seemed to be concealed in them; but apart from himself he knew of only one human being on the *Aurora*, one he didn't really want to think about.

He said aside, "Doc, who's over there?"

Doc Chimp said, "Who? Her? Oh, I don't know her name. She's purchased people for some low-G type or other. But she's on our side." The web stirred and a face peered out. It was human enough as far as features went, but the emptiness in the eyes told Pertin that Doc Chimp was right. "Anyway," chattered the chimp, "I better fill you in. Hell's really broken loose, Ben James. A bunch of beings tried to wreck the telescope. Not sure but what they've done it, too; the Scorpion's trying to see how much can be salvaged. If it and Aphrodite here hadn't come along, we'd be out of business until they could send new instruments through - and by then it would likely be too late."

The thuuud-screech was a lot closer here; apart from everything else, it was making Pertin's head pound. "What beings?" he managed to croak.

"Didn't see them. I just saw somebody disappearing into a passage, and then the Sheliak here came hell-fire fast after him and saw me. For a minute he thought I was them." Doc Chimp cocked his head ruefully. "You could've found yourself short a monkey right there, Ben James, if I hadn't talked fast. Then the Sheliak commandeered me to help, and we came down here to hold the fort. Oh, how sore my soles and knuckles are, Ben James, against the pounding of those rockets! But I did my duty. Then we got the observatory deck sealed off - they'd used a chemical explosive on the telescope and sprung a port - and then I happened to think of my human master, off there watching The Belle of Bellatrix without a care, and I persuaded Aphrodite to fetch you."

Pertin frowned. "I don't quite see why," he objected. "I Can't help."

"You can stay alive," declared the chimp. "I didn't tell you all of it. When they came for the telescope they had to get past the T'Worlies here. Well, you know T'Worlies Can't do much against any being that can operate in high-G. But they tried to do what they could. And two of them got killed."

That was a shocker if ever there was one; the one cardinal rule among the races of the Galaxy was that no race could ever kill or seriously maim a member of another. Even on Sun One, what disciplinary problems arose were handled within the delegation of the race that produced the problem; there was some provision for a body of other races sitting in judgement if the offending race failed to deal with the problem, but that law had never had to be invoked. Pertin would hardly have believed the chimp if Nummie hadn't confirmed it.

"They're crazy, then," said Pertin. "All right. We'll have to get a report back to Sun One. Nummie, is your stereo stage operating?"

"Confirm that it is operative," sang the Pmal in his ear. "State that such a transmission has already been sent."

"Good. I'll have to send one too, and I think the rest of us should; but that can wait." Pertin tried to shift position as the floor surged particularly viciously, suppressed a groan and thought, "Since we're here, they probably won't try anything right away." Then he said, "What we need is a comb-out. Get every being on board to account for his whereabouts and try to identify the ones who did it. For that we need a little free-fall. Can we arrange that?"

The silvery girl spoke at last. Apparently she had heard everything, had simply seen no need to comment. "We can have a little free-fall. We can have a little comb-out. But we probably won't need to arrange it right away as the next observation period is only—" A meaningless squawk, but Doc Chimp filled in: "She means about fifteen minutes away."

It took a moment for Pertin to realize that the girl's words had been in English. He looked at her curiously, but there was no time to think about that. "Tine," he said. "How many were involved in the bombing?"

"Not less than three nor more than eight," piped the Pmal translator, responding to the T'Worlie's whistle, "Out of how many in the crew?"

The T'Worlie hesitated. "There are in excess of three hundred thousand beings at present existing within the ship's hull. Of these, a large number are collective creatures."

"Not counting the Boaty-Bits, I mean how many individuals?"

"There are not less than two hundred forty nor more than two hundred fifty."

Pertin said, "So the troublemakers are a tiny fraction. That's good. Well broadcast a ship wide alarm. Most of the crew will cooperate—"

He stopped, staring at the silver pseudogirl. "What's the matter?"

She had stretched out her fingertips towards the entrance port, almost in the traditional pose of a human sleepwalker.

"The matter," she said in her incongruous colloquial English, the tones as deep as Pertin's own, "is that the tiny fraction of troublemakers is coming back."

A moment later no one needed the silvery girl's fingers to hear for them; the sound of a rush grew rapidly louder: a crackling electrical sound, like the patter of a collapsing charge field. Into the room burst what looked at first like a single huge blue eye.

"Sirian!" howled Doc Chimp in terror, and tried to leap out of the way. But not even his simian muscles had the strength to leap, and the surging G-force of the rockets made him stumble and fall heavily on his side against the silvery girl. At one stroke, two-thirds of the beings able to move at all in the high-G field were immobilized; the T'Worlie, the purchased person and Ben Pertin himself were wholly useless while the rockets were on. The Sirian, moving by electrostatic forces, was immune to mere ten and twelve-G thrusts; and he bore with him something that glittered, carried under the great forward eye in a pair of crablike pincers, tiny and almost invisible.

Pertin, laid heedlessly just inside the portal, was first in the creature's path. He did not even have time to realize he was in danger before the Sirian was upon him. Then, queerly, the great eye stared at him and the Sirian paused, hesitated, and turned away. It propelled its glittering metal object at the bulkhead and at once reversed its field and sped away.

If that was another bomb, Pertin thought, they'd all had it now; beyond that bulkhead was empty space from the last attack. The rest of the ship might be saved if the automatic seals worked fast enough, but they would be boiled into outer space - himself, the purchased person, Doc Chimp and the T'Worlie, at least.

Pertin had forgotten the Sheliak. The soggy baker's bun that slumped on the deck and had taken no part in the conversation was still in fact an able and intelligent being. It acted faster than Pertin would have believed possible. The bun shape elongated itself into a sort of stemmed sea-anemone, flowed like lightning up and down around the bomb, surrounding it, drowning it in alien flesh.

It exploded.

The only sign the rest of them could see was a quick convulsive shudder of the Sheliak's tissue. Even the noise was muffled and almost inaudible, in the constant thunder of the rockets.

But the Sheliak glowed brilliant gold for a moment with a flash of the last light of its life, and died.

They had defended themselves, but at the cost of one of their allies.

As if on cue, the thunder of the rockets stopped, and they found themselves blessedly free of the crushing G forces. Doc Chimp, struggling to untangle himself from the silvery girl, went flying across the chamber, ricocheted against a wall and brought up short next to where Pertin was struggling to disassociate himself from the plastic foam.

"Are you all right, Ben James?" Doc Chimp yelled.

Pertin pushed himself free and caught the outstretched chimpanzee arm for stability. He ached in every bone and muscle, and he was drenched in sweat - from the heat of the plastic wrap or from fear, he could not say which.

"I think so," he said. "Why do you suppose he did that?"

"What? Who? You mean the Sheliak? Why, I guess it's their nature, Ben James—"

"No, not the Sheliak," Pertin said but he didn't say out loud what it was that was perplexing him. He only thought it to himself. Why had the Sirian looked at him with death in his eye, then stopped and turned away?

3

It turned out there were two things wrong with Pertin's calculations. First, the odds weren't quite as favourable as he had guessed; he had not remembered that the bombers might have allies who were as gravity-bound as himself, and so hadn't put in an appearance. Second, he had not realized that a large proportion of the beings aboard the *Aurora* simply didn't want to be bothered. They were apathetic, hopeless, detached, or in some exotic mood with no human analogue; or perhaps, here and there, they just weren't about to take orders from an up-start biped jackanapes from - what was the name of it? - Earth.

The other problem was that the work of the *Aurora* was in observing Object Lambda, not in tracking down aberrant entities. Not even the fact that beings of one or two races had killed beings of another race could change their minds. The Scorpion robot, when it returned from patching together what it could of the damaged optical equipment, would not even take time to talk to Pertin; it went at once to its assigned place in the instrument chamber and began to oversee the series of observations which was what the thrust stoppage was for.

Pertin could not even get the free-fall period extended to permit a full-scale search of the ship. The T'Worlies pointed out to him, reasonably enough, that as they were all going to die anyhow the first priority was the errand for which they had all undertaken to give their lives: to complete the observation of Object Lambda. And the laws of celestial dynamics were remorseless. A certain quantum of delta-V had to be applied to *Aurora's* course. There was only finite time in which to do it. If they failed to put in the necessary velocity change the probe would fly by Object Lambda too fast to accomplish the mission to which it was assigned. So the T'Worlies were going to work on their instrument observations

and nothing else, although they certainly wished him well, they indicated, in his search for the guilty ones.

The search team turned out to be a party of five: Pertin, Doc Chimp, the pseudogirl, the purchased-people woman and the little kittenish object who had joined the party to greet them on arrival. They couldn't even recruit the Boaty-Bits to their cause.

As soon as the collective creatures had learned of the bombing attempt they had departed en masse to swarm in some obscure corner of the vessel and unite all of their intelligence in the problem of deciding what to do about it.

Pertin saw a great deal of the ship, but found no criminals. The one being they had certainly identified, the Sirian, eluded their search. If a being the size of a horse, emitting an electrostatic crackle every time it moved, could avoid the searchers, what chance had they for locating a party of unidentified marauders? No chance, answered Echo; and they found nothing.

About all they really accomplished was to move the acceleration cocoons for the low-G beings they had come to think of as friends close enough together so that they could watch out for each other when the delta-V thrust immobilized them. There were many such periods. By the nature of things, there had to be. It was *thuuud-screech!* at least eighty percent of the time, cut up the individual portions as they would. The *Aurora* had thousands of kps of velocity to shed as it overtook Lambda, if they were to avoid over-running it too fast to orbit their package. It made little difference how it felt to the members of the crew.

To Pertin it felt like being kicked in the kidneys four or five times a minute, for hours on end. With allowances for variations in anatomy, it felt very much like that to most of the beings. Frail little creatures like the T'Worlies were particularly hard hit, or would have been if it hadn't been for the fact that the *Aurora* was their own design, cocoons and all, and many thousands of years of thought had gone into reducing the damage to a T'Worlie frame in a cocoon. It was an advantage of a sort, but against it was the overpowering debit that on their native planet the surface gravity was less than a quarter-G. They were not creatures designed for strain.

It was the unfelt pain that was the worst. Every explosion produced noise and thrust, but it also sleeted a few more curies of radiation through their bodies and brought them a few hours nearer to death. As it was not felt, and as there was nothing that could be done about it, they seldom spoke of it to each other.

For half a dozen periods there was no further violence from anyone on board, and the *Aurora* went on about its business. Pertin reserved the time in the cocoon for taping his endless reports to Sun One, and for inspecting and studying the observation results on Object Lambda. When there was the blissful floating surcease, for half an hour or so at a time, he used it to roam around the ship. His announced purpose was to watch out for trouble. As time passed and trouble did not come, he stopped talking about it, but continued to roam. He was interested in the ship on its own merits. Simply by its novelty it helped take his mind off the growing number of things he didn't want to think about. This was the first real spaceship he had ever seen. That seemed strange to him, when he considered how many tens of thousands of light-years he had travelled since he volunteered for tachyon transmission from Earth. It was normal enough, though. *Sun One* was thick with beings who had crossed and re-crossed the Galaxy a dozen times, and never seen a spaceship at all.

Object Lambda was getting perceptibly closer - not to the eye, to be sure. No eye on the ship was in a position to see it anyway. But the cameras were able to make out more and more detail - not easily or well because its intrinsic luminosity was so very low, and in the low-energy long-wave part of the spectrum at that. They had even discovered that Lambda was not alone in space. Huge as it was, nearly two AU in diameter, it carried

with its little orbiting fleas. The biggest of them was not much more than a mile through and the distance was still enormous; but the T'Worlie instruments managed to detect them, even identify them. The longest periods of free-fall were when the T'Worlies deployed their photon mirrors at the end of a tether, far from even the vibration of a footstep or shifting weight of robot mass in the ship; then their optical emulsions greedily drank up the scant flow of photons from Lambda and converted them into images.

If they had had a great deal of time, they could have answered all questions from there, or nearly all. They were in intergalactic space, and there was no such thing as haze, beyond the advance scattering of their own rocket ejecta. But they had no time: the delta-V equation still ruled them, and one of its tricky parentheses said that deceleration early was worth twice much deceleration late, since it gave them more time for deceleration before they reached the neighbourhood of Lambda. And then there was the mere fact of their rapid approach. The image did not remain still in the T'Worlie mirrors. It grew, minutely, to be sure, but enough that an exposure for more than an hour or so began to fuzz.

Even so, they learned. The nearest thing to pleasure Pertin ever found in a T'Worlie was when a particularly fine series of photographs had been taken, and it was discovered that they showed a hint, a shadow, finally an orbital line for the biggest of the objects that circled Lambda. The pleasure was spoiled for Pertin when the calculations of orbit and time turned out to be impossible; Lambda would have had to have the density of the solar wind to have so slow a satellite. But the T'Worlies didn't mind. Explanations would come. If not then, later. If not to the present generation, to the next. Meanwhile they were accruing information.

Between the hours of thudding acceleration and the briefer periods of frenzied activity, darting about the ship, Pertin was nearly always bone-weary and aching. Sleep did not rest him.

Communication with *Sun One* was more and more an effort.

The twelve-hour wait between transmission and reply - often it was more, when the other beings on the ship had queued up for their own transmissions - destroyed the rhythm of the communication; by the time he had a response to his report of the attack on the instrument chamber, he was already relaxing in the continued comfort of the experience that the attack had not been repeated. Once it was himself, or anyway that other self named Ben Charles Pertin, who reported to him. That put him in a tailspin that only a carefully metered dose of tranquillizers from the cocoon's store could deal with. From the expression on the other Ben Pertin's face, it was some strain for him too. But the worst from *Sun One* was not from his other self, it was from Gerald York Bielowitz, who acknowledged a report, suggested some additional instrument readings that would be desirable, started to sign off, hesitated, and then added: "Oh, you'll be interested, I think. Zara Doy and Ben Charles were married three hours ago."

Pertin did not remember cutting the stereo stage or seeing the little figure collapse. He lay there for a long time while the cocoon stroked and soothed him, lifted him, lowered him, gently massaged what pains it could from his limbs. At some point he fell asleep. In his dream Ben Charles Pertin married Zara Doy, but he was Ben Charles, and the two of them, intoxicated with the wine they drank and with each other, spoke sadly and wistfully about the other Ben Pertin who was busy about the task of dying on an alien spaceship a Galaxy away. When he woke up and discovered he was the other Ben Pertin he was in an instant unfocused rage.

It was Doc Chimp who woke him. "Boss," he whined. "Listen, wake up. I've been limping around this hellhole of a ship looking for the Scorpien robot, and—"

"Shut up," snarled Pertin through the outside communicator of his cocoon. His tone took the chimp aback. He slumped on his haunches, staring at Pertin's cocoon. He was in bad shape, Pertin saw, unwilling to care about what he saw: the bright green plume was sagging under the thrust of the rockets, the paws and knuckles were scarred and stained. That was why he was there, of course: feet and paws, he could withstand the constantly

varying G-force of the thrusters with only a good deal of pain, so it was his job to do what Pertin could not when he was bound to the cocoon. A part of Pertin's brain told him that if he tried he probably could find ways of making the job easier.

The chimp's expression was no longer woebegone, it was angry.

"Sure," he said thickly, "I'll shut up. Why not? We'll all shut up before long. Dead beings are all pretty quiet."

Pertin fought to control his own anger. "We'll be dead all right. What difference does it make? Do you think this is a real life, what we're doing here? Back on *Sun One* we're alive and well; this is only a dream!"

The chimp wailed, "Ben James, I'm tired and I hurt. I'm sorry if I said something wrong. Look, I'll go away and come back, only—"

"Do that," snapped Pertin, turning off the outside communicator.

His agitated hairy face stared dolefully in at him. Doc Chimp was by no means a jungle primate. The shape of his skull was different, the structure of his respiratory system was different, the very chemicals that flowed in his blood were different. But he was not human, either. Doc Chimp – his formal name was not that, but it was all Pertin had ever called him – was one of the mutated animals who had been constructed for special purposes in the molecular biology plants on Earth.

His quadridexterous hands and feet made him particularly useful even in free fall, where he could fling himself about with perfect ease from toe-rest to hand-hold, while humans like Pertin clumsily sprawled and spun. But he had his drawbacks.

A chimpanzee is simply not a human. His physiology is one count against him. He cannot develop the brain of a human because his skull is the wrong shape, and because the chemistry of his blood does not carry enough nourishment to meet the demands of abstract thought. He cannot speak because he lacks the physical equipment to form the wide variety of phonemes in human language. The molecular-biology people knew how to deal with that: things like widening the angle of the cranium called the "kyphosis", thus allowing the brain to round out full frontal lobes, restructuring tongue and palate, even adding new serum components to the blood like the alphas-globulins that bind human haemoglobin.

In practical terms what had been done to Doc Chimp and his siblings was to speed up evolution. But that was not quite enough. Two generations back Doc Chimp's ancestors could form only one or two of the simplest words and learn rote tricks; they lacked conceptual thought entirely. Doc Chimp had capacity. He did not have background or tradition. His sixty-degree kyphosis was close to the human average, so that his skull was domed; he possessed a forehead; he could remember complicated instructions and perform difficult tasks; he was capable of assimilating the equivalent of a trade-school education in skill and of conducting the equivalent of cocktail-party conversation in performance. What he lacked was ego. His psychological profile was high in cyclothymia but also in ergic tension; his moods shifted drastically, and he was always adventurous, always afraid. His emotional index was about equal to that of a human five-year-old. Frightened, he ran. Angered, he struck out. Baffled, he wept.

Staring back through the cover of the cocoon, Pertin relented. "Sorry," he said, snapping the communicator back on. "What were you trying to tell me?"

"I've lost the Scorpion," wailed the chimp.

"Well? Are you supposed to be his keeper?"

"Be easy on me, Ben James," begged the chimpanzee. "I hurt all over. The robot was supposed to be getting ready for some new instruments that were coming in. He isn't there. The stuff's piling up in the transmission chamber and nobody to do anything about it. I'm afraid it'll get damaged."

"What about what's-her-name, Aphrodite? Can't she store it?"

"She is trying to, but the Scorpion is a specialist in this stuff and she isn't. None of the other high-G creatures is, as far as I can tell, and, oh, Ben James, I've travelled so far trying to find someone who can help!"

He was a pitiable sight, his fur unpreened, his gay clothes smudged and wrinkled. Pertin said, "You've done your best, Doc. There's nothing I can do until the thrust stops - half an hour or so. Why don't you rest up for a while?"

"Thanks, Ben James!" cried the chimp gratefully. "I'll just take a few minutes. Wake me, will you? I - I —"

But he was already clambering into the cocoon, his spiderlike arms shaking with strain. Pertin lay back and closed his own eyes, allowing the cocoon to do its best, which amounted to increasing its rate of stroking his back muscles, trying mindlessly to calm him down.

It had seemed very easy, back on Sun One, to volunteer for a task even though the end of it was his certain death. He had not counted on the fact that death did not come like the turning of a switch but slowly and with increasing pain, or that he would be watching friends die before him.

Pertin didn't wake the chimp when he could finally move; he thrust his own way to the tachyon transmission chamber, hurling himself down the corridors carelessly and almost diving into what turned out to be the silver pseudogirl. He didn't recognize the creature at first, for she had unfurled enormous silver-film wings and looked like a tinsel Christmas-tree angel as she drove past him.

In the tachyon chamber he found Nummie supervising an octopoidal creature from one of the Core stars in transporting crated equipment to an empty chamber. "What's happened? Where did Aphrodite go? What's this stuff?" he demanded, all at once.

Nummie paused and hung in the air before him, balancing himself against stray currents of air with casual movements of his wings. He whistled a methodical answer, and the Pmal translator converted it to this stately and precise form of speech in English: "Of those events which have occurred, that which appears most significant is the arrival of eight hundred mass units of observing equipment. A currently occurring event is that this equipment is in process of being installed. A complicating event is that the Scorpion artificial intelligence being has elected to engage his attention in other areas. There are other events but of lesser significance. The being you name Aphrodite has gone to bring the Beta Boötis collective beings to assist in the aforesaid installation. The reason for this is that they are catalogued as possessing qualification on this instrumentation similar to that of the artificial intelligence Scorpion.

The precise nature of the stuff is tachyar-observing equipment. I offer an additional observation: the purpose of it is to map and survey Object Lambda. I offer another additional observation: it will add to the radiation load by a factor of not less than three nor more than eight."

The T'Worlie hung silently in front of him, waiting for him to respond.

It had a long wait. Pertin was trying to assimilate the information he had just received. A factor of not less than three.

But that meant that his life expectancy was not a matter of months or weeks. It might only be days!

Tachyar was simple enough in concept. It was like the ancient electromagnetic radar sets of Earth; the difference was that it used the faster-than-light tachyons to scan a distant object and return an echo of its shape and size. It was expensive – all tachyon transmission was expensive. Its only justification was that it was indispensable.

If you wanted to get a man, or an instrument, from one point in the universe to some other point across interstellar distances, you had only two choices. One was to build a rocket - preferably fusion-powered, like the *Aurora*. You then had to launch it, set it on its way and wait anywhere from a decade to a geologic era for it to reach a nearby star. If you wanted to go farther than that, you would wait forever. A voyage from a spiral arm to the core, or from any point in the Galaxy to the deeps of intergalactic space where they now were, was simply out of the time consciousness of any race but the T'Worlies.

The other method was faster. It dispensed with attempting to transport matter at all. Instead of sending an object, you sent a blueprint of the object, and had it built from plan at the destination.

It was not a simple procedure. It required enormous expenditures of energy to generate the tachyon stream that carried the blueprint. It required complex scanning devices to measure every atom and molecule in the object to be transmitted, and to encode positions and relationships for transmission. Above all, it required a tachyon receiver at the point to which you wanted to go.

But granted all those things, you could “travel” at the speed of the tachyons, those particles whose lower speed limit was the velocity of light, and whose upper limit had never been measured.

Of course, the original object remained behind. It was scanned and its blueprints were encoded, and then it was returned unharmed. The man who volunteered for a tachyon trip also stayed at home. What flashed across space was a description of himself, and what emerged from the receiving chamber at destination was a new-built identical copy. There was no detectable difference between original and copy. It would have been a foolproof method of counterfeiting or of duplicating rare art objects - if it had not been so expensive in terms of power consumption that there was little worth the cost of duplicating.

Tachyar was only one use of tachyons. Like ancient radar and sonar, it generated a beam and measured reflections. The problem in using tachyar was the magnitude of the beam. Vast energies were used, and the fraction which was wasted because of the natural inefficiency of the process produced ionizing radiation in large amplitudes.

Sun One must be taking the question of Object Lambda's satellites seriously if it was sending tachyar equipment to study them. The cost was high. It would be paid in the lives of those aboard.

The single planet of the golden-yellow star Beta Boötis was like a cooler, older Venus. Because it was farther from its sun, it was spared the huge flow of heat that cooked Venus sterile; but it possessed the same enormously deep, enormously dense atmosphere. It was spared the loss of its liquid water, and so its surface was covered an average of thirty miles deep in an Oceanic soup. That was where the Boaty-Bits had evolved.

Aquatic in origin, they could survive on Sun One or the probe ship only in edited forms adapted for air-breathing; they could not live on high-gravity planets at all, since they had only the feeblest mechanisms for propelling themselves about their native seas. An individual Boaty-Bit was about as useful as an infant jellyfish, and not much more intelligent. That didn't matter; the Boaty-Bits never operated as individuals. Their swarming instinct was overpowering, and once linked together they had a collective

intelligence that was a direct function of their number. A quarter of a million Boaty-Bits equalled a man. On their home planet they sometimes linked up in collectives of four or five million or more, but those groupings could be maintained only briefly even in their oceans and were never attained in their air-breathing edited forms.

When they arrived in the tachyon receiver chamber, they immediately took command. They were not specialists in tachyonic gear. They were generalists. The skills required to assemble and install the crated instruments were built into their collective intelligence. What they lacked was operating organs, but the T'Worlie, his octopoidal assistant, Ben James Pertin and every other being who came nearby were conscripted to be their hands and legs. It was slow work that would have been impossible in a gravity field for the T'Worlie, or even for Pertin himself; but in free fall they were able to tug and guide the components into place, and the T'Worlie had mass enough to make the connections and calibrate the equipment. When they were nearly done Doc Chimp turned up, angry because he had been left behind, and his muscle finished the job quickly.

As they were finishing up, there was a blast of white sound from the tachyon receiving chamber and warning lights flashed.

Doc Chimp spun around, his wide jaw gaping. "Something important coming in?" he guessed.

"I don't know, but Let's go look." They thrust themselves towards the chamber, got there just as the portal opened.

Three Sheliaks emerged.

They flashed out of the lock with a hollow hooting, long black shapes that rocketed towards the watching Terrestrials and bounced down on the green metal surface of the chamber. They clung in spite of the lack of gravity, and flowed abruptly into a new shape, black velvet globes, thigh high, three more emerged, and three more. When fifteen had come to rest on the floor of the chamber the transmission stopped. Without a detectable sign, all of them moved in synchronization. From flattened spheres, like baker's buns set in a tray, they suddenly turned luminous, flowing with patterns of soft colour, then elongated themselves and stretched up tapered necks that rose as tall as a man.

The tallest of them, the first through the chamber and the nearest to Ben James Pertin, made a noise like escaping gas from a compressed-air cylinder. In Pertin's ear his Pmal unit translated for him: Take notice! We are under the direction of the collective council of Sun One. We are to take command of this vessel, and all other beings aboard are to follow our orders!"

Pertin's curiosity was suddenly transmuted into anger, a radiant rage that flooded his mind and over-ruled his inhibitions. "The hell you say!" he shouted. "I've had no such instructions from the Earth representatives, and I deny your authority!"

The Sheliak paused, the long neck swaying back and forth, "Your wishes are immaterial," it stated at last. "We can destroy you."

Doc Chimp chattered nervously. "Don't make him mad, Ben James. You know how Sheliaks are." Pertin did; they were among the few races which had built-in weaponry. On the infrequent occasions when the Galaxy found itself troubled by unruly barbarians, it was usually Sheliaks who were employed to quiet the opposition; they were the Foreign Legion of the Galaxy.

The long neck swayed towards the mutated chimpanzee. From the narrow orifice at its tip the sound exploded again, and the translators shouted at the chimp: "Your name! Your function! Reply at once!"

"I am Napier Chimski, technician," the chimp replied bravely.

The vase shape swung towards Pertin. "Your name and function!"

"Oh, Ben James Pertin," he said, distracted by hearing Doc Chimp's real name for the first time. "I'm an engineer. But don't go so fast! I've just come from Sun One myself, and I know There's no authority for one race to impose its will on another. I will certainly report this at once!"

The Sheliak swayed silently for a moment, towards him then away. At last it said, "No orders for you at present. Go about your business."

Pertin drew himself up, holding to a wall brace. "You're my business!" he shouted. "There are murdering beings aboard this
If you're here by order of Sun One, as you say, why don't you go find them and leave us alone?"

The Sheliak did not reply. All fifteen of them were swaying silently now. Perhaps they were conferring with each other, Pertin thought; Sheliaks had learned vocal sound only to talk to other races of the Galaxy, and the riddle of how they communicated among themselves was still unsolved,

"I certainly will report this," Pertin added.

There was still no response. The pointless confrontation might have gone on, but it was interrupted by the bright thrice-repeated flash of white light that meant the thrusters were about to go into operation again.

"Oh, hell," groaned Pertin. "Doc, we'd better get back to our cocoons."

"Never too soon for me, Ben James," agreed the chimp fervently, staring at the Sheliaks. "Let's go!"

They raced for the cocoons. The warning had caught others short; the corridors were full of low-G beings hurrying back to safety before the fusion rockets began again. The Boaty-Bits arrowed past them at top velocity, like a cartoon drawing of a swarm of wasps. The octopoidal creature launched itself from a wall at the end of the corridor with a multiple thrust of its legs and spun, tentacles waving crazily, past them. There was a thundering roar, and three Sheliaks raced past them, then another three and another, in Vees. A being like a six-legged spider monkey bounced back and forth, scratching and clawing for footholds, whining irritably to itself in a high-pitched tone.

And abruptly: "Ben James! Look!"

Doc Chimp was staring down a broad transverse corridor as they soared by it. Pertin looked, saw a creature like an enormous blue eye, at least a foot across. It swerved as he looked, revealing the body behind it, a tapered torpedo shape, glittering with patterned scales like blue glass. A stubby wing spread on each side, the leading edge thick and scaled, flowing smoothly into the body, the thin trailing edge a flutter of blue. And beyond it was something bright, metallic and angular.

"It's the Sirian, Ben James! The one that tried to kill us all. And wasn't that the Scorpion robot with him?"

Pertin reached out, grabbed a handhold and checked himself. The chimpanzee reacted a moment later and also stopped himself, a yard or two farther down. "What are you doing, Ben James?" he chattered.

"I'm going after them!" Pertin snapped. "The Sirian's one of the murderers. And the robot's up to something, too."

“No, Ben James! You can’t take the G-force. Let’s let the Sheliaks take care of them, that’s what they’re here for.”

The featureless green light of the corridor faded and changed to a dull crimson glow. That was the short-term warning; they had less than thirty seconds now before the rockets began.

Pertin cursed. The chimp was right, of course, and he knew it; it didn’t make it any more enjoyable, though. “Oh, hell,” he groaned. “All right, Let’s go!”

They made it - not with any time to spare. They rolled into their cocoons just as the first giant thrust struck, and a moment later the regular repeated sound of the rockets reached them. The webbing spread itself over Pertin; he fell into the warm, receiving shape of the cocoon, but he resisted its comfort. While it was still adjusting to his shape, he was already stabbing at the controls of the stereo stage, trying to summon all the cocoon-bound beings on the ship into a conference call. The automatic dialling circuits were equal to the job; it was not something that was often done, but the physical capacity for it existed.

But not this time. All lines were busy. Every being on the ship, it appeared, was already using his stereo stage for purposes of his own - most likely for trying to transmit a tachyon message to his own people at Sun One, Pertin knew.

He fell back and let the cocoon massage him as soothingly as it could.

Thuuud-screech, *Thuuud-screech*. The thrust felt more powerful than before, the tempo a bit faster. The thunder and groan of the drive made it nearly impossible for Pertin to think, but he had to think.

The problem on his mind was not any of the obvious ones: what to do about the Sheliaks, how to deal with the murderers, the completion of the mission. His mind worried at those a moment at a time and then let them go; they required action, not thought, and action was not available to him while the fusion rockets roared.

Instead, he thought about an unpleasant discovery. The discovery was that there wasn’t much in being a hero. His heroism had been entered into lightly enough, but he supposed that was not in itself rare; how many soon-to-be Medal of Honour winners had volunteered for combat patrols simply because they were bored with sitting in foxholes, and found themselves caught up in events which made them immortal reputations?

But his heroism was not even going to get him a medal. No one would ever really know what was happening on this ship, because it was absolutely certain there would be no survivors. Either *Aurora*’s mission would succeed, in which event the Galaxy at large would accept their sacrifice complacently, or it would fail. Then they would all be thought of, when they were thought of at all, as that sorry bunch that wasted themselves for nothing.

With the thud and rasp of metal roaring at him, his cocoon seesawing to the violent deceleration of the rockets, tired, half-sick, angry and hopeless, Ben James Pertin faced the fact that there was nothing left in his life anywhere that would give him one moment’s joy.

Another Ben Pertin tens of thousands of light-years away was trying to soothe his bride. He said, “Honey, I knew what I was getting into when I volunteered. I was willing to go through with it. That other me on the ship doesn’t feel any different about it.”

Zara Pertin said harshly, “That other you is going to die, Ben Charles.”

"But I'll still be alive!"

"And he'll be dead. Don't you understand me? *I love you!* And he is you, and I don't like to think about what is happening to him." She turned over, giving her back a chance to collect some of the UV tan from the lamps overhead and took off her goggles. She said, "What's it like there now, Ben?"

"Well—" he said.

"No, I want to know. Tell me."

Ben Charles looked around the little simulated beach beside the great water tank that was their "ocean". There was no one around but themselves. They'd come here for that reason, but Ben Charles found himself wishing for an interruption. She turned her head and looked at him, and he shrugged.

"All right. It's bad," he said. "The sensors in his acceleration cocoon report some destruction of the white corpuscles already. Pretty soon he'll start having nosebleeds, then he'll bleed internally. He'll be getting weaker, running a temperature, and before long he'll die." He paused, then answered the unspoken question. "Probably within a week."

He propped himself up on one arm - easily enough; even here the effective gravity was only a fraction of Earth-normal. He looked out at the thousand-foot cusp of water, curving upward to meet the bulkhead at its far end and added: "That's if he dies as a result of radiation, but he might not last that long. Some of the beings are getting violent. The electronic ones are malfunctioning, because the radiation affects their synapses. Insane, really. A lot of the organic ones are sick. All of them are scared. There - there have been deaths."

"I should have gone with you," Zara said thoughtfully.

"Oh, now, really! That's stupid! What would be the point?"

"I would have felt better about it, and so would you. He." She stood up, smiling, her mind made up. "If you have to go again, dear," she said, "I'm going too. Now I'm hungry. Race you back to the apartment."

4

The tachyar verified the orbits of the little bodies orbiting Lambda; the mass estimates were right, thus the density estimates were right. Object Lambda's average density was about that of a high vacuum. Nevertheless, it appeared to have a solid surface.

Pertin greeted the news with apathy. There were more immediately important developments on the ship, and the ultimate purpose for which the ship existed didn't seem particularly interesting any more.

For one thing, the tachyon transmission chamber was shut down. For better or for worse, there would be no more imports, no additional beings, no new crewmembers, no nothing.

Its last function had been to bring in new structural members and drive units. Inside the former receiving chamber of the

Aurora they were being assembled into a new, small ship. It took form as a squat, dense object, all fusion drive and instruments, with no living space for a crew. It would have no crew. It would carry nothing but itself, and the tachyon receiving crystal that had been the *Aurora's*.

Pertin had no part in the construction project. The Boaty-Bits directed it, and the metal pseudogirl and a few other high-G types carried it out. He looked in on it once or twice. Besides the new members brought in on the tachyon receiver, before it was rehoused in its new body, the small ship used bulkheads and beams from *Aurora* itself. It seemed to Ben James Pertin that vital structural parts were being seriously weakened. As an engineer, that interested him. As a living human being whose life depended on the structural integrity of the *Aurora*, he didn't even think it worth mentioning. Whatever was happening was planned. If the life of the *Aurora* was being shortened thereby, it was because the beings doing the planning had decided the ship was wholly expendable.

The only nonexpendable part of the *Aurora* now was the little drone being put together in its belly.

The drone comprised only three elements: a tiny tachyon receiving unit, built around the crystal from *Aurora's* own, in a globular body fitted with weak handling propulsors, suitable only for correcting minor errors in the elements of an orbit. A thick half-shell of metal-bonded ceramics on one side, an ablation shield designed to flake and burn away, disposing of excess heat. And, outside the ablation shield, the enormous fusion-propulsion engines.

It was a high-deceleration drone. It would be launched from the mother ship at some point near Object Lambda. Its fusion jets would slow it radically. Stressed as it was, with no living creatures aboard, it could endure hundred-G delta-V forces. But Pertin's engineer's eye recognized the implications of the design. Even those forces would not be enough. The drone would make use of Object Lambda's enormously deep atmosphere as well. It would dip into it, shedding velocity by burning it off as friction, blazing like a meteorite from its ablation surfaces. That frightful crunch would slow it to manageable relative speeds; as it came out of its first skip into Lambda's air it would be near enough to orbital velocity for capture. Then its handling propulsors could take over the simpler job of neatening up the elements of the orbit, and a tachyon receiver would be in place around Object Lambda.

What about the mother ship?

All the evidence Pertin needed was there in the construction of the probe. If such forces were needed to put the probe in orbit, there was no hope that *Aurora* could join it. Its kilotons of mass were simply too great for the forces available to deal with. Even if the forces were available, its living cargo would be pulped by the delta-V.

Aurora would drop its cargo, flash by Object Lambda and continue through intergalactic space. It would no longer have fusion mass for its reactors. It would stop decelerating; to all intents and purposes, it would be only another chunk of intergalactic debris on a pointless orbit to nowhere.

Its course would continue to take it towards the Galaxy itself and in time, perhaps, it would approach some of the inhabited worlds within mere light-years.

But that time would be too late to matter to anyone. It was a matter of thousands of years from even the fringe stars of the Galaxy, and by men there would be little left of even the dust of its crew. They had been written off.

Meanwhile, the deceleration phases were getting longer, the zero-G pauses for observation shorter and less frequent. Sun One had lost interest in the observations that could be conducted from *Aurora*. They were only waiting for the probe to go into orbit.

All through the ship, the living crewmembers were showing the effects. They were weaker and less rational, less capable of fine distinctions. The automatic machinery was running the ship.

As it poured the last of its fuel reserves into space to break its flight, it manufactured enormous clouds of radioactive gas.

They were not a hazard to the ship's crew; it was too late for such trivial affairs to matter to the doomed beings. But they had caused some concern to the planners on Sun One. A thousand generations later perhaps they would be a pollution problem, as the newly manufactured clouds of gas preceded the ship in entering well-travelled portions of space. But by then some of the deadlier elements would have burned themselves out, their short half-lives expended. In any case, that was a problem for a lie thousandth generation - by which time, no doubt, tachyon transport would itself have been superseded, and no one would any longer trouble with such primitive concerns as the crude slower-than-light transport of mass.

The gas clouds as they departed did leave some trace of ionizing radiation, added to the larger increments from the blasts themselves and from the tachyon. The combined radiation was a witches' brew of gammas and alphas and betas, now and then primary particles that coursed through the entire space of the ship from hull to hull and did little harm, except when they struck an atomic nucleus and released a tiny, deadly shower of secondaries.

It was the secondaries, the gammas, that did the dirty work. They interfered with the electronic functions of the computers, robots and metal beings. They damaged the instrumentation of the ship. Above all, they coursed through the organic matter they encountered, knocking out an electron here, loosening a molecular bond there, damaging a cell nucleus, making a blood vessel more permeable. The whole organic crew was on hourly doses of antirads, giving support to their internal workings. It was not enough. Still the radiation soaked in and struck at them. Blood, ichor, sap or stew or exotic biologies, the fluids that circulated in their bodies changed and grew less capable of supporting life. Physically they grew weaker. Mentally they became cloudy.

Taken out of the environment and rushed to an antirad clinic, like the victims of an industrial accident, most of them still could have been saved.

There was no hope of that. There was no place to take them. No part of the ship was free of penetrating ionizing radiation now, and every hour more and more of the chemistry of their bodies was damaged.

"Ben James, Ben James," sobbed the voice of Doc Chimp.

Pertin roused himself. The thud and screech of the drive was still loud in his ear. Every time the floor drove up to meet the cocoon the single huge bruise that his body had become screamed with pain. Inside his chest his lungs felt as if they had broken loose and were being beaten sore against the inside of his rib cage.

He peered blearily out of the cocoon. The chimp was staring pathetically up at him. The great green plume of his hat was broken, his fur splotched with dirt and blood. The rubbery features of his face looked almost as they always had, except for an open cut along the flat, sculptured nose.

"What?" demanded Pertin thickly.

"I have to hide, Ben James. The Sheliaks are after me."

Pertin tried to sit up and could not. "They're not here to hurt you," he pointed out.

The chimp whimpered, bobbing on all four limbs as he braced himself against the rocket thrust. "They will! They're mad, Ben James. They killed the T'Worlie, for nothing, just killed him. And they almost killed me,"

"What were you doing?"

"Nothing! Well, I - I was watching their mating ritual. But that wasn't it..."

"You idiot," groaned Pertin. "Look, can you climb in here with me?"

"No, Ben James, I don't have the strength,"

"It's either that or let them catch you."

The chimpanzee whimpered in fear, then abruptly, on the upsurge of the ship against its shock absorbers, sprang to the side of the cocoon. Pertin grabbed at him and pulled him inside just as the next thrust caught them. Doc Chimp weighed some two hundred pounds at Earth's surface. The delta-V gave him a momentary weight of nearly half a ton, all concentrated on Pertin's shoulder and chest. He grunted explosively. The chimp was caught with part of his side still across the metal lip of the cocoon, but he made no sound beyond the steady sotto-voce mumble of fear.

Pertin tried to make room behind him, in a place where the cocoon had never been designed to take a load. It tried its mechanical best to give support to the double mass. It was not adequate to the job. Pertin discovered when the next thrust came that his arm was still caught under the chimp. He yelped, managed to free it on the upsurge, discovered it was not broken. He slammed down the privacy curtain, hoping the Sheliaks would not look inside if they came.

"Now," he panted, "what did you say about Nummie?"

"He's dead, Ben James. They killed him. I didn't mean any harm," the chimp sobbed. "You know how the Sheliaks reproduce - by budding, like terrestrial plants. The young ones sprout out of the old ones, and grow until they're mature enough to be detached."

"I know." Pertin had only the vaguest acquaintance with Sheliaks, but everybody knew that much. They didn't have sexes, but the conjugation provided a union that shuffled up the genes.

"Well, that didn't look like fun to me, but I wanted to see. Nummie told me to go away. He couldn't; he was in one of the spare cocoons and couldn't move. But he said they'd be mad."

The chimp switched position and Pertin shouted in pain as his upper thigh took part of the chimp's weight on a rocket thrust.

"Sorry, Ben James. It was disgusting, the way they did it! Any two of them can get the urge. They sort of melt down and flow together like jelly. All the body cells migrate, pair off and fuse.

Finally they form again into a sort of cactus-shaped vegetable thing that buds off haploid, mobile creatures. Those are the Sheliaks we see."

"You wanted to watch that?" asked Pertin, almost able to laugh in spite of his discomfort, in spite of Nummie, in spite of everything.

"Yes, Ben James. Just for curiosity. And then "There's my friend, Fireball. He's the Sheliak who was here all along. He was nice, Ben James. I miss him."

"I didn't know you knew any Sheliaks."

“Not well. But he was with me, helping to guard all of you, and we talked.”

“You sound as if he’s dead, too.”

“Might as well be. That union is a sort of individual suicide. It’s something you do for the race, and because your glands push you that way. But it’s the end for the individual. It wipes out all conscious memory and individual personality. I guess that’s why Fireball couldn’t understand our notions of sex.

“Anyway,” he said, “it was all right while Fireball was here alone. He wasn’t lonely; or anyway, he didn’t want any other Sheliaks around. When they’re in danger, you see, they can’t help conjugating. It’s a survival mechanism. The radiation was danger, and he knew that the only way for him to keep alive was to stay away from his own people. When the new ones came aboard he was actually afraid of them. He knew when they came close they were likely to set off a biological process they couldn’t control. And when it was over—”

The chimp swallowed. He thrust himself up on an elbow, regardless of the pain, and stared into Pertin’s eyes.

“He didn’t know me, Ben James! The two new ones that were half him, they came after me. The T’Worlie saw what was happening and tried to stop them - and that’s how I got away, while they were killing him. So I ran. But where is there to run to, in this ship?”

When they could move again they found the T’Worlie easily enough. He was floating upside down, purplish drops of blood, perfectly round, floating beside him. The little vibrissae around his sphincter mouth, more like cat’s whiskers than anything on a proper earthly bat, were perfectly still. Nummie was rigid. The pattern of five eyes was unmoving. The intricate pattern of blotches of colour on his filmy wings was fading.

There was no one else around. “What’ll we do with him, Ben James?” chattered the chimp.

“Throw him out in to space, I guess,” Pertin said harshly. Normally the mass would be useful in the tachyon receiver, but there were to be no more incoming tachyon transmissions.

It didn’t do to think of that. He stared at the T’Worlie. A slow encrustation of thick gel was matting the fluffy surface of Nummie’s chest, and where it had once protruded sharply, like a bird’s wishbone, it was crushed and concave.

Pertin felt the muscles on his face drawing taut, perhaps partly because of the intense vinegar reek. He said, “Why would the Sheliaks break up equipment?”

The chimpanzee stared at the mess in the room. Bright green and orange transistors and microchips were scattered like jigsaw pieces in the air. “I don’t know, Ben James! None of that was that way when I ran out of here. Do you suppose they just lost their temper?”

“Sheliaks don’t lose their temper that way. They broke up instruments on purpose. What was coming in before you decided to play Peeping Tom?”

“Oh—” The chimp thought. “More reports on Object Lambda. The density was confirmed. Very low. Like a sparse cloud of interstellar gas.”

“We already knew it was Cloud-Cuckoo Land. That couldn’t have had any effect on them.”

“Something did, Ben James,” cried the chimp. “Look, We’ve got to do something. They’ll be looking for me, and—”

“Unless,” said Pertin thoughtfully, “it wasn’t the Sheliaks who did it. The robot was up to something. And there are still a couple of purchased people not accounted for. And—”

Too late!” howled the chimp. “Listen, Ben James! Somebody’s coming!”

But it wasn’t the Sheliaks who came in on them, it was Aphrodite, the silver pseudogirl, the heavy-planet creature in human form. Her fingers were outstretched towards them, listening, as her great foil wings drove her forward.

Behind her was the Scorpion robot.

They made an eerie pair, the striking orange-eyed girl with her coil of metallic hair and steel-bright body hues, and the mechanical creature shaped like a metal octopus. Its central body was a massive disc, the colour of the pseudogirl’s flesh, and its silvery tentacles made a fringe of snakes around it. A greenish membrane that bulged above the upper surface of the disc fluttered, producing a drum-roll of sound. Pertin’s Pmal translator obediently turned it into recognizable words: “DO NOT RESIST. WE WISH YOU TO COME WITH US.”

“Where?” he demanded.

There was no answer, at least not in words. Pertin was caught in something like a metal whip that stung a trail of fire around his waist. It was one of the robot’s tentacles that had caught him; it pinned his arms, and the pseudogirl launched herself at him, her metal fist catching him full in the face. Floating as he was, the blow was robbed of some of its force, but it doubled him, flung him back against the robot’s lash, dazed with pain and sobbing for breath.

He heard a cry of anguish from Doc Chimp, but could not turn to see what was happening. The vinegary smell of the dead T’Worlie penetrated his nostrils, mixing with the tang of his own blood.

“Why?” he croaked, and tried to raise his arms to defend himself as the girl dropped towards him again. She did not answer. She was on him like a great silvery bat, metal feet kicking, shining fists flying. The lights went out. He lost touch with space and time.

Pertin was not wholly unconscious, but he was so near to it, so filled with pain and confusion, that he could hardly remember what happened next. He had a fugitive impression of great shapes whirling around him, then of being carried away while someone behind him sobbed his name, the voice diminishing in the distance.

A long time later he opened his eyes.

He was alone, in a part of the ship he knew only sketchily. A large open cocoon hung from a wall, and inside it was what looked like one of the purchased people. Pertin’s face was swollen and his eyes not focusing well at all; he squinted, but could not make out the features on the person in the cocoon. It appeared to be male, however, and it appeared to be in the last stages of dissolution.

It moved and looked towards him. A caricature of a smile disturbed the weeks-old beard, and the dry tongue licked the lips. A cracked voice muttered something, the tone hoarse and indistinguishable.

“Who are you? What do you want?” demanded Ben James Pertin.

The figure rasped a sort of hacking cough, that perhaps was meant for a chuckle. It tried again, and this time its words came clear enough - clear, and familiar, in a way that Pertin had not expected.

"I want to talk to you, Ben," it croaked. "We have a lot in common, you know."

Pertin frowned, then his swollen eyes widened. He pushed himself towards the swathed figure, caught himself at the lip of the cocoon and stared down. The eyes that looked up at him were pain-filled but very familiar. He was looking into his own, battered, obviously dying face.

Pertin remembered a time, months ago.

He had gone to the tachyon transmitter and light-heartedly enough given his blueprint to the scanners and allowed one self of him to be beamed to the *Aurora*. It had not seemed like an important thing to do. At that time, it was not clear that the *Aurora* was a doomed ship. At that time he had no one to consult but himself; Zara Doy was still only a casual acquaintance, the new girl from Earth with the pretty face.

"Ben Frank," he whispered.

"Right as rain," croaked the ghastly voice. "And I know about you well enough. You're Ben James Pertin, and you've been aboard two weeks now. Not very thoughtful of you, failing to visit a dying relative."

"But I thought you were dead already! They said -I mean, I wouldn't have had to come, if—"

"Blaming me, Ben James? Well, why shouldn't you? How often have I laid here, blaming you, and me, and all the Ben Pertins there ever were." A spasm of coughing racked him, but he talked rightly through it. "I wanted them to think I was dead. Only fair, isn't it? They were killing me, and now I've killed their Project Lambda."

"You?"

"With a lot of help. My Sirian friends were the first and best, but there have been plenty since. It was the Sirians who told me you were aboard; you gave one of them quite a start, when he saw you in the instrument room. Wrecked his mission, you did."

Coughing drowned the voice out; the other Ben Pertin convulsively clutched at the cocoon monitor controls. A warning panel lit over the bed. He was very near death; but the cocoon was not yet defeated; it metered coloured fluids into the external blood supply that was trying to replace the destroyed blood cells.

"I only have a few minutes," Ben Frank Pertin gasped. "I don't mind. But I'm not finished, Ben James. You have to finish for me. Destroy that probe! I don't want it to succeed; I don't want Sun One to get its orbiting body around Object Lambda."

"But then we - then we'll all have died in vain!"

"Of course it is in vain! What's the use of it all? A chunk of useless matter - thousands of light-years from anywhere - going nowhere! Do you know how many lives it's cost? I want you to wreck it for me, Ben James, so those fools on Sun One will know better than to try this same stunt another time!"

"But it's not a stunt," objected Ben James Pertin. "It's important. That object is something special, solid but like a cloud—"

“Cloud-Cuckoo Land! It’s not worth a single life. Anyway, it’s done already, Ben James, my friends are wrecking the probe right now. I only called you here because—”

He paused, coughing terribly. The face that was so much like Ben James’s own was aged with the weary agony of radiation death.

“Because,” he gasped, I want some part of me to stay alive. If you keep the tachyon receiver you can live, Ben James. Weeks - maybe months! But once it goes there will be no more food, no more air, no more fuel. I want—”

But what he wanted to say at the last Ben James Pertin would never know. His duplicate suddenly gasped for breath, made a strangling sound and was still.

After a moment Ben James pulled the privacy screen over the face that was his own face and turned to leave.

Halfway to the launch chamber he ran into the Sheliaks. They were in pursuit of two beings, one of them the purchased people woman, the other Doc Chimp. The Sheliaks looked strange, and in a moment Pertin realized why. They were smaller than they had been; essentially they were children now, some of their mass lost when they budded. But their behaviour was childish only in its reckless disregard for consequences; it was lethal, as far as their quarry was concerned.

Pertin did not pause to speculate on issues. Doc Chimp was in danger, and he dived to the rescue.

He collided head-on with one of the Sheliaks. It was like tackling a six-foot lump of chilled, damp dough. No bones, no cushioning fat, just a great dense mass of muscular fibre. The Sheliak automatically cupped around him and, linked, they went flying into the wall. The corridor spun around him, a nightmare of blue-green light and red-black shadow and corpse-coloured beings.

“Stop!” roared Pertin. “Wait! Listen to me!” But no one wanted to talk. They were all on him, thrusting, striking, crushing, with whatever offensive weapons their mobile anatomies gave them. He fought back, using a skill he had never known he had. His hands were black and slippery with blood, no doubt much of it his own. Bravely the woman and Doc Chimp had turned back to fight, but it was three of them against more than a dozen Sheliaks, and the issue was not in doubt.

What saved them was Aphrodite, the silver pseudogirl. Her carved face remote as an angel’s, she drove towards them with great sweeps of her wings. Coronas of electrostatic fire haloed her fingers and wingtips; something gun-shaped and deadly was in her hands. The Sheliaks, all at once and in unison, turned to meet her. The gun-shaped thing hissed and a white jet crackled towards them. It passed near enough to Pertin for him to feel a breath of icy death, but it did not strike him; it grazed the Sheliak who held him, and at once the being stiffened and began to drift. Behind them, where the jet had struck, the wall was hidden with a broad patch of glittering frost. A cloud of white vapour billowed out around it.

In the haze Pertin caught sight of Doc Chimp and the purchased people woman, momentarily forgotten as the Sheliaks turned against the stronger foe. The woman was badly hurt; Doc Chimp was helping her, his hairy face turned fearfully towards the Sheliaks. Pertin joined them and the three of them moved inconspicuously away.

When they were two corridors away and the sounds of battle had diminished they paused and inspected their injuries. Pertin himself had only added a few bruises to a total that was already too large to worry about; the chimp was even more battered, but still operational. The woman was worst off of any of them. She was bleeding profusely from, among other places, a gash on the upper arm; her face was grotesquely puffed, both eyes blackened; and one leg was bent at an angle anatomically impossible to a whole

bone. But she did not appear to feel pain. When Pertin spoke to her, she answered in English: "They don't consider it important. It will not prevent moving about and performing necessary functions."

Doc Chimp was groaning and sobbing in pain. "Those Sheliaks!" he cried, feebly trying to groom his matted fur. "They're wholly out of control, Ben James. They tried again to wreck the probe - may have done it by now, if they've got enough power of concentration to remember what they were doing when we diverted their attention. And if Aphrodite hasn't killed them all."

Pertin said, with a confidence he didn't feel: "She'll stop them. As long as we've got her on our side—"

"On our side!" cried Doc Chimp. "Ben James, you don't know what you're saying. She's worse than they are!"

"But she tried to rescue you."

The purchased woman said calmly, "That is wrong. She merely wanted to kill the Sheliaks."

"That's right, Ben James! She's against all organic beings now. She's not ionizable. Radiation is only an annoyance to her. The only thing that can kill her is deprivation of energy sources, and that means the tachyon receiver; once it's gone, she will die as soon as the fuel runs out."

Pertin said slowly: "Is it the same with the Scorpion robot?"

The battered face nodded, the stub of the green plume jerking wildly.

"Then," said Pertin, "that means we have to assume all non-organic beings will feel the same and try to prevent the launch. What about the other organics?"

The purchased woman recited emotionlessly: "T'Worlies, all dead. Boaty-Bits, more than half destroyed; the remainder too few to make a collective entity intelligent enough to matter. Sirians and Core Stars races, not observed in recent hours and must be presumed dead or neutralized. Sheliaks, destructive and purposeless."

Pertin absorbed the information without shock, without reaction of any kind, except a strange impulse to laugh. "But - but who does that leave to see that the launch occurs?"

"Nobody!" cried Doc Chimp, "Nobody at all, Ben James - except us!"

5

They reached the launch chamber ahead of the Sheliaks after all. There was no one there.

The capsule, with its tiny bright tachyon crystal at its heart lay silent and unmoving, connected to the main bulk of the ship only by a jettisonable canopy now. There had been destruction all around it, but it was still intact.

There was less than an hour until launch.

“We’ll build barricades,” said Pertin. “Anything. Those wrecked instrument boards - the spare plates and braces. Whatever we can move, we’ll put it up against the entrance. All we have to do is delay them—”

But they had barely begun when bright silver glinted in the approach corridor, and the silvery pseudogirl came towards them, followed by the tumbling form of the Scorpion robot. They brought up short at the entrance, the robot with one slim tentacle coiled caressingly around the silver girl.

Pertin put his weight behind the channel iron he had been about to emplace at the door and launched it towards the pair. The pseudogirl made a sound that was half a laugh and half the singing of a single piercing note, and the Scorpion uncoiled a long silver sting as they moved aside, easily dodging the missile.

The sting reached out and touched Pertin. A blinding light stabbed from it, jolting him with a strong electric shock.

The girl glided in, spreading her now-tattered wings. The stirred air bathed him in a strong scent, ether-sweet, with undertones like the pits of peaches. Pertin searched the bright silvery face and found no expression. It was no more human than a doll’s. The Scorpion’s silver tentacles thrust away the pitiful instructions, making a sound like an enormous gong which Pertin’s Pmal refused to translate.

The purchased woman intervened, hurling herself towards the robot, and was brushed heedlessly aside. She struck against the side of the probe ship, a blow which must have been agony to her human nervous system, but she did not cry out. Awkwardly she tried to project herself again into the fight. Pertin, his muscles beginning to relax their spasm, forced himself to join her.

A bird-like trilling from outside indicated that others were coming, and behind the great winged hulk of the pseudogirl Pertin could see black shadow-shapes moving across the dimly lighted shaft, growing rapidly as they approached.

“Oh, no!” moaned Doc Chimp. “Sheliaks and a Sirian!”

The robot’s single-minded purpose was not deflected; it floated towards Pertin, green dome pulsing. An elongating tentacle struck out at Pertin like an endless silver snake, not to sling this time but to snare. It wrapped him in slick, chill coils. He fought free, was caught again, and then at last the Scorpion turned to confront the other beings. It arched its stinging jet, but held poised, waiting.

The Sirian was first into the launch chamber, a tapered, blue-scaled torpedo shape fifteen feet long, all pliant wing and shining eye. With a ripple of trailing edges it flashed at the Scorpion.

The sting coiled, jetting white light into the wide blue eye. The Sirian was not defenceless; its own forces gathered the robot’s charge and repelled it, sending the jet back at the robot, reinforced and multiplied.

The pseudogirl turned with great strokes of her wings, her three-fingered hand coming up with the gun-shaped something that had killed Sheliaks. Desperately Pertin twisted to intercept her. Her wings were sadly battered now, but still gave her superior mobility; he missed her on the first try and crashed against a wall. Half blind with his own blood, flowing ink-black in the greenish light, he doubled his legs under him and launched himself at her again.

The gun-shaped thing swung to meet him. It clicked in the pseudogirl's bright silver hand, and the white jet hissed at him. He heard a brittle crackling sound in the air, and felt the cold breath of death.

But the jet had missed, and he was on her. With one hand he swung at her wrist. It was like striking a crowbar with his bare hand, but it jarred the weapon loose; and just then the battle between Scorpion and Sirian reached its climax.

The Sirian's triply potent return jet struck a vital place in the great green dome of the robot. It exploded. The mellow booming sound the robot made became a hollow jangle. The tentacles writhed and recoiled. It sprawled in the air, a grotesque huddle of tortured metal, spilling green fire and drops of an acid that sizzled and burned where they struck.

If robots have life, that life was gone; it was dead. The silvery girl abandoned the fight with Pertin. With a great stroke of her wings she propelled herself to the robot, hovered over it, wailing an unearthly sound.

And the great blue eye of the Sirian turned towards Pertin. Behind it the Sheliaks, late on the scene but ready for battle, were elongating their wrinkled necks towards him.

Pertin cried desperately: "Wait! They - they were misleading you. They were trying to prevent the launch, to save their own lives!"

The eye hesitated.

"We're dead already," he croaked. "Nothing can help us now, not any organic creature. The radiation will kill us before long, even the Sheliaks. But the robot and the girl—"

He could hear his voice translating and hissing or singing out of the aliens' Pmals.

"The robot," he repeated, "and the altered copy that looks like a terrestrial female - they weren't radiation-vulnerable. They could go on indefinitely. But the rest of us - if we let them succeed in stopping the launch, then we will die for nothing!"

The eye paused irresolute.

Then the foremost of the Sheliaks cried: "Fool! We too are not radiation-vulnerable! We simply need to conjugate, and be born again. But we must have the tachyon receiver, and if you try to keep us from it you must die!"

And the three tapered teardrop shapes, like a school of sharks in formation, plunged towards them, blazing with their own crimson light.

The Sirian eye irresolutely turned towards them, then back towards Pertin; then, with decision, whirled to confront them.

Contemptuously the Sheliaks changed course to meet it. The leading Sheliak widened a ruff of flesh like an instant air-brake and stopped in the air, flowed with a dazzle of colour, narrowed a neck towards the Sirian eye.

The thin neck spat a stream of yellow fluid. It struck the Sirian eye and clung, acid, adhesive, agonizing. The Sirian made an unearthly wailing noise at the sudden pain of the attack against which it had no built-in defences. The great blue eye turned milky white; the horse-huge body knotted itself in agony.

But it still had strength for a final blow. It fired the jet of energy that had destroyed the robot against the Sheliaks.

Electrical energy paralysed their muscular systems; heat seared the life from them. They died instantly, all three of them. But it was the last effort of the Sirian. All its stored energy

had gone into that pulse. The reflected cascade of burning energy came bouncing back upon them all, bathed the silvery girl and sent her reeling soundlessly into a wall, to collapse into an ungainly contorted mass that didn't move. Pertin was farther away and partly shielded by what was left of the robot; even so, it lanced his skin with pain.

But he was alive.

Slowly, and very painfully, he caught a hold-fast on the wall, steadied himself while he looked around.

The purchased people woman was dead, either bled empty or caught in that last furious bolt. The Sirian eye floated aimlessly, broken and no longer moving, a milky ooze coming from its body. The robot was destroyed; the pseudogirl was drifting impotently away; the Sheliaks were cinders.

The chamber was filled with the stench of many different kinds of death, but Pertin was still alive.

Suddenly remembering, he cried, "Doc Chimp!"

The ape was out of sight. Furiously Pertin ransacked the chamber, and found him at last, wedged between the wall of the probe and the ship's canopy, not quite dead but very unconscious.

Pertin looked down at him sadly and affectionately. It was nearly time to launch the probe, and the question in Pertin's mind was: was it better to wake him up, or to let him sleep as the probe was launched, the canopy jettisoned, and all the air in the chamber puffed instantly and murderously away into space?

The question was taken out of his hand as the ape stirred moaned softly and opened his eyes. He looked up at Ben James Pertin and said thickly, "The probe?"

"It's all right," said Pertin. "We'll have to launch it by hand."

"When, Ben James?"

Pertin checked the time. "Just a few minutes now," he said. The ape grinned painfully. That's good to know, Ben James," he said. "No more problems. No more aches and pains. I always thought I'd be afraid of dying, but you know? To tell you the truth, I'm kind of looking forward to it."

The process that animated the body of the silvery pseudogirl was more like electrophoresis than chemistry, but it was vulnerable to attack. It was damaged now; but she was not dead. The great wings were broken and useless, but her limbs still moved, the inappropriate angel face still showed its bleak, proud expression.

She was in great pain; that is to say, all the sensory nets of the edited body were transmitting messages of malfunction, damage and warning. She did not perceive them as a human perceives a toothache, a sensation so blinding that it can lead to suicide; but they did not interfere with the few pleasure-bound processes left to her: reminiscence, forevision, contemplation. In the sense that these messages were pain, she had experienced pain from the moment she floated out of the tachyon receiver on *Aurora*. All edited members of her race did. There was no way to rearrange their structures into forms viable in atmosphere and low-G that was comfortable for them.

Time was when Aphrodite had experienced pain only infrequently, and in ways that were soon mended. Time was when she had lain with her sisters in the icy methane slush of her native planet, absorbing energy from the radioactive elements that swam about them, growing, learning from the tutorials of her orthofather, competing in the endless elimination battles of her race that finally won her her choice of assignments and

ultimately led her to the *Aurora* and its imminent doom. Her race was not greatly interested in astronomy; they had known almost nothing of it until the first T'Worlie probe survived the crushing pressures of their atmosphere and brought them into contact. From the surface of their enormous planet, there were no stars to be seen. Even their aircraft never reached an altitude beyond the dense yellow-grey clouds.

What brought her to *Aurora* was the trait that her whole upbringing had trained into her: the competitive need to go farther and do more. It was not goal-oriented. It gained nothing from victories except the opportunity for further victories. And the only victory now open to Aphrodite was to survive; and there was but one way to do it - by preventing the launching of the probe.

She calculated she had strength enough left to destroy the two organic creatures in her way, but only just; and only if she acted now.

It was Pertin who saw her first: he froze with his hand on the release lever, and it was Doc Chimp who acted. He flung himself on the pseudogirl. "Hurry up, Ben James!" he shouted. "She's too strong for me—" And his voice stopped, punctuated with a screech of pain as the silvery arm thrust him away like a cannon-shot. The chimp went flying into the floating wreckage of the Scorpian robot. The soft, frail dome of the skull, so cleverly mutated nearly into the shape of man's own, impaled itself on a steel shard, and the thoughtful, considering brain was destroyed.

Pertin hardly even saw it. He was past the point for sorrow. It would be easy to let the pseudogirl destroy him. At least one life would be saved, her own. His no longer counted. He could hope for a few days, a week or two at the most, of being able to move and breathe. But what would it be like? Increasing pain. Hopeless fear. Regret. Envy-

He pressed the lever just as her fingers touched him.

The instant sharp slap of the explosion was the last sound he ever heard.

At the second Ben James Pertin pressed the release explosive shears cut the aft end of the ship free. The canopy flew out and away. The air puffed into emptiness. The probe rocket dropped free and began to align itself with the now near great disc of Object Lambda.

The first thing Pertin felt was the sharp pain of the explosion, then the second, longer, more deadly pain as the air pressure dropped to instant zero and his own blood and body fluids, the air in his own lungs, the gases dissolved in his blood tried to expand to fill the enormous emptiness all around. He caught a glimpse of the silvery girl, arms, legs and broken wings flailing, as she shot past him, careened off the jagged edge of metal where the shears had cut the probe satellite free and ricocheted out into emptiness. If she made a sound, he could not hear it.

There was no longer a way for him to hear sound. There was no longer a continuous medium of air to carry it.

He had just a glimpse of the huge near surface of Object Lambda - the body he had called "Cuckoo" - as it hung like a great dull circle in the empty sky, cutting off one spiral limb of his own, eternally lost, Galaxy.

He did not see the orienting jets of the satellite spurt carefully controlled measures of flame to position it for its final thrust.

He did not see the great violet flare of the fusion rockets that began to slow it. He could not see any of that, because by then he was dead.

Neither he nor anyone else in the probe ship saw the great series of flares as the satellite fought to slow itself. *Aurora* flew on, back towards the Galaxy, without power,

containing only the least flickerings of life for a few of its beings. The probe left it as it drew more and more rapidly away. The distance between them was millions of miles before the satellite made its first meteoric contact with the outer layers of that anomalously thick atmosphere around Cuckoo.

It was a spectacle worth watching, if there had been eyes left in *Aurora* to see. The satellite plunged through a carefully planned chord of the atmosphere. Its ablative surface burned and tore away in a flare like all the Fourth of July fireworks in man's history going off at once. But there was none to see, not Sirian eye nor Sheliak sensors, not T'Worlie nor Earthman nor alien of any kind; where life remained at all, it lacked strength for curiosity, and it would not remain very long.

Fifty thousand years later *Aurora* might pass near some sun of an outstretched spiral arm. But by then it would no longer matter to anyone, except as a historical curiosity from a time about which no one any longer cared.

6

Some days later, the sensors on Sun One reported that the probe was in a stable orbit. The beings on Sun One responded with pleasure; everyone was delighted that the project was a success.

Now stable, the probe began to do the work for which it had been designed.

The complex H-bomb sequencing units and the small, strong pressure-plate shock absorbers fell away, responding to remote controls from Sun One. They would never be used again.

The tachyon-receiving unit began to emit a stream of tiny metallic shards, none larger than a few inches in its greatest measure.

When some hundreds of them were through, floating like a metallic mist around the drone, a quick small machine came through and began to catch them and link them together. Time passed, hours and then days. A queer box-like shape took form and became a larger tachyon receiver, ready for action.

From tens of thousands of light-years away an angular, crystalline machine flashed along the tachyon patterns and emerged in the new receiver. It was not alive. Was not even a robot, or a proxy like the purchased people. It was simply an automatic machine that sensed certain potentials and charges, double-checked the strength of the materials and the solidity of the joints, directed the hummingbird-sized construction machine to correct a few faults and then reported that Cuckoo Station, the orbiting body around what had been called Object Lambda, was now ready to be built.

A few hours later the first girders of a thousand-metre revolving wheel were being joined together.

Plates appeared to surround the girders with an airtight sheath. Machines arrived to be stored in them. Atmosphere was pumped through to fill the chambers. The handling machines were busy, taxed beyond their capacities; more handling machines were sent and soon the orbiting station was whole, supplied, and being-rated.

The first living beings appeared. A Sheliak, naked to the cold of intergalactic space - but for the brief time of its transition to the orbiting wheel unharmed by it. A dozen T'Worlies

in a single elastic air bubble, scurrying into the protection of the orbital wheel. There were Sirians, reptilian Aldebaranians, a hive of Boaty-Bits, and, at the last, a couple of humans.

One of them was named Ben Line Pertin.

He floated out of the tachyon receiver in his pressure suit, his thruster unit ready in his hands.

He did not use it at once; he paused a moment, to look around.

The first thing he did was to stare down at the enormous flat surface of Cuckoo, so near, so huge, so incredible as it hung like an endless shield in the sky.

The second was to look back to where the Galaxy lay, sparkling like the sea of stars it was.

He could not see the doomship, but he knew it must be somewhere in his line of sight. There were no signals from it any more. There was no way of detecting it, and would not be for tens of thousands of years.

He stared for a moment, then half-shrugged. "Poor bastards," he whispered, and turned and drove towards the wheel awaiting him.

End of part one.