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In the Ocean of Night

GREG BENFORD

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The Dwarfs of Zwergwelt

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PATTERNS OF CHAOS

(conclusion)

COLIN KAPP

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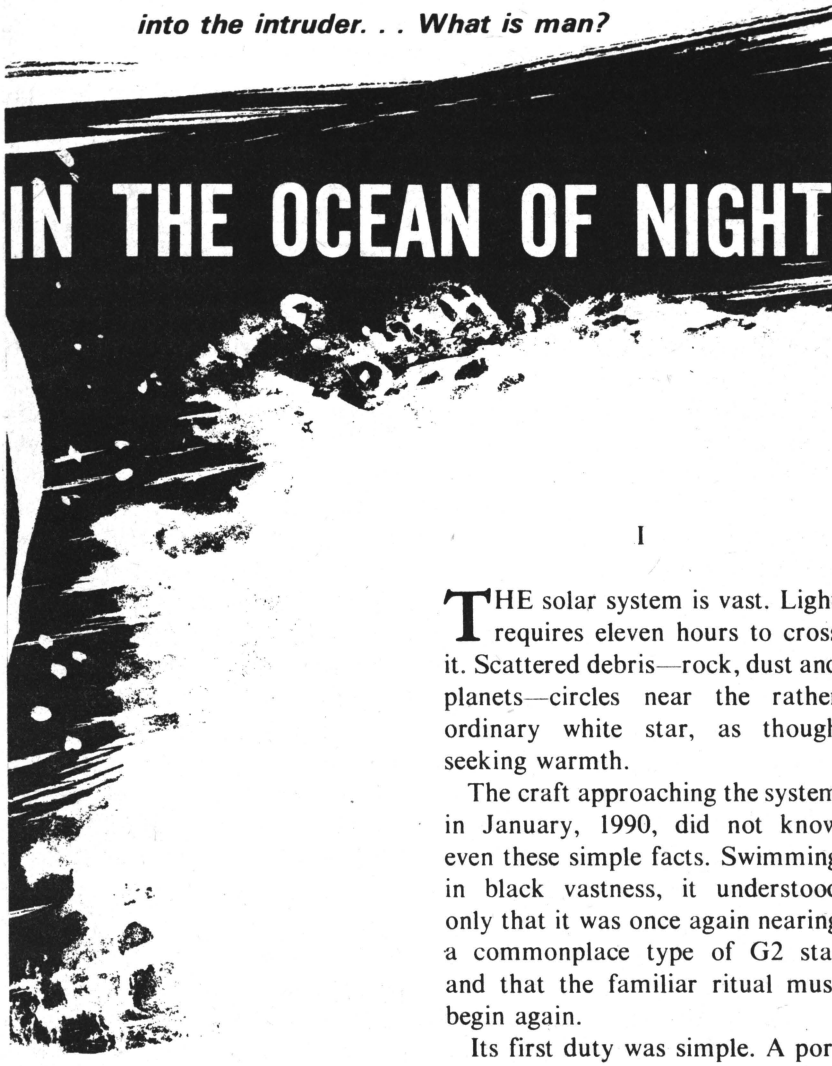
GREG BENFORD

One question, above all, struck terror into the intruder. . . What is man?



I

THE solar system is vast. Light requires eleven hours to cross it. Scattered debris—rock, dust and planets—circles near the rather ordinary white star, as though seeking warmth.

The craft approaching the system in January, 1990, did not know even these simple facts. Swimming in black vastness, it understood only that it was once again nearing a commonplace type of G2 star and that the familiar ritual must begin again.

Its first duty was simple. A port opened to the utter cold and high vacuum and began to peer ahead. A

blinder was drawn across the image of the nearing star, so that tiny flecks of light near it could register.

The telescope employed had a diameter of about sixty inches. It did not differ markedly from those used in the early twentieth century on Earth, for after a certain point technology cannot improve a telescope's ability to resolve faint dots of light.

The craft crept along at far below lightspeed. Isotopes met with a low mumble in the throat of its exhaust —fingers of magnetic fields preceding it plucked the atoms and funneled them in from the surrounding interstellar gas. Only this disturbed the aching reaches among the stars.

The craft watched patiently. Any planets orbiting the star ahead were still far away. A series of precise image recordings were necessary if the computers were to pick out a planet moving against the speckled background of stationary stars.

At four-tenths of a light-year from the star, the activated computer and its backup agreed that a yellow-brown patch of dim light near the white star was a planet. Higher functions of the computers felt the prickly stirrings of life and were informed of the discovery. A background library of planetary theory was consulted. The blurred disk shimmered as the ship swept through a whisper-thin cloud of dust while the machines bracketed and measured their objective in methodical detail.

The planet was large. It might have enough mass to ignite thermonuclear fires in its core, but experience argued that its light was too dim. The computers pondered whether to classify the system as a binary star and eventually decided against it. Still, the waxing point of light ahead held promise.

MARK CAINS came to work early, squinting through the smog layers of Pasadena at a watery fall sunrise. The day was already thickening the air with more of the ruddy-brown stuff—he slipped a filtering mask over his nose and mouth and found he could all but taste the cloying sweet smell it gave off.

He switched on the car radio for the early morning news. Another major strike was brewing, threatening to cut off shipping and the airlines. The President had made a "tough, hard-hitting" speech against rioters—Federal funding for local law enforcement was going up. A large industrial coalition had linked up with the labor unions to back a bill granting extraordinary protectionist import taxes on Japanese products. Psy-

chologists were worrying about the sudden surge in infanticide—they thought it was probably related to crowding in the cities.

Mark turned off the radio as he swung into the parking lot at the Jet Propulsion Laboratory. He had been keeping vague track of the political situation and was not surprised to find it getting worse—it always did. The national administration was jittery, unable to deal with the slump in the economy and the irrational violence that cropped up everywhere.

Well, he told himself, politics were not his problem. As usual, his was one of the first cars in the parking lot. He passed through the three sets of guards, grudgingly showed his badge—the Lab was a prime target for the bombers—and his steps echoed down deserted neon-lit corridors. But when he reached his office he found the lab director, Clyde Fixmer, already waiting. Mark moved a stack of journals out of a chair for Fixmer, pushed papers into a heap on his desk and raised the blinds on his window to let a pale blade of light lance across one wall. He adjusted the blinds every morning as a ritual beginning of work, and so uttered nothing more than a greeting to Fixmer until it was done.

"Something wrong?" he asked then, summoning up an alertness he seldom felt at this hour. He was chief monitor for several space vehicles and any one of them could go wrong overnight.

Clyde Fixmer grimaced and closed a folder he had been reading. "The Jupiter Viking," he said tersely. He was a burly red-faced man with a smooth voice and a belly that had recently begun to curl down his business shirts to conceal his belt buckle.

"Malfunction?"

"No. It's being jammed." He flicked a glance at Mark.

Mark raised an eyebrow. He might still be a little sleepy, but he wasn't so slow that he could be taken in by an office gag.

"Yeah, I know," Fixmer said, sighing. "Sounds impossible. But it happened."

"How?"

"At two this morning we got a diagnostic report from the Viking. The graveyard shift couldn't figure it out, so they called me. Seemed like the onboard computer thought the main radio dish was having feedback problems." He shook his head, took off his glasses to cradle them in his lap. "That wasn't it, I decided. The dish is okay. But every time it tries to transmit to us, something echoes the signal back after two minutes."

"Echoes?" Mark swerved his chair, staring at titles on his book-

shelves while he ran the circuit layout of the Viking's radio gear through his mind. "Two minutes is far too long for any feedback problem—you're right. Unless the whole program has gone bad and the transmissions are being retaped by the Viking itself. It could get confused and think it was getting an incoming signal."

Fixmer waved a hand impatiently. "We thought of that. The diagnostics say no—it just can't be that way. Everything checks out okay."

"I give up," Mark said, spreading his hands and dropping them to the desk top. The gesture reminded him of his expansive Italian father—the thought irritated him. He felt faintly embarrassed by anything dramatic. "What is it, then?"

"I think the Viking is getting an honest incoming signal. It's telling us the truth."

Mark snorted. "Come off it. Radio waves take nearly an hour to reach us from Jupiter. How is anyone going to send the Viking's own messages back to it in two minutes?"

"By putting a transmitter in orbit around Jupiter—one just like the Viking."

Mark blinked. "The Russians? But they agreed—"

"No Russians. We checked. They say no, they haven't shot anything out that way at all. And our intelligence people are sure they're leveling."

"What do they think about the Chinese?"

"No chance. They aren't yet playing in our league."

"Who, then?"

Fixmer shrugged, the slight sagging lines of his face deepened by fatigue. "I was kind of thinking you might help me find out."

There was a faint ring of defeat in the way the man said it—Mark noted the tone because he had never heard it before. Usually Fixmer had an aspect of brittle hardness, a cool superior air. Now his face was not set in its habitual aloof expression—it seemed open, even vulnerable. Mark guessed why the man had come in himself at two A.M.—to show his people, without having to tell them in so many words, that he could do the work himself, that he had not lost the touch, that he understood the twists and subtleties of the machines they guided. But Clyde Fixmer had not unraveled the knot and the graveyard shift had departed, so now he could safely ask for help. The puzzle was still unbroken but at least Fixmer knew more than Mark and that still was something—it gave Fixmer an edge.

Mark smiled wryly at the game. "Sure," he said. "I'll help."

AROUND every star stretches a spherical shell of space and within the thickness of that shell, temperatures on the surfaces of planets do not range to extremes of heat or cold that would preclude life. The shell, of course, is that theoretical entity called the ecosphere.

One-third of a light-year from the fiercely burning sun, the craft surveyed the ecosphere and found it good. There was no sign of a large planet like the yellow-brown gas giant circling farther out. This was a crucial test, for a massive world in the middle of the ecosphere would have rendered unstable other orbits within the life-giving volume. Had the ship found such a planet, it was under standing orders—orders so old that they functioned as instincts—to accelerate through the system, gathering all possible data for the astrophysical index, and chart a course for the next in a lengthy record of candidate suns.

Instead the ship continued to decelerate. Its telescope emerged more frequently and peered ahead for the longer intervals. Another gas giant was resolved from a blue-white splotch—this planet was smaller than the first and farther from the star. Its image resisted precision. The craft noted a blurred circlet of light and speculated that the body might have rings, a not uncommon occurrence among heavy planets.

Another massive planet was discovered, then another. They formed a string leading away from the ecosphere. The machines began to lower their estimates of the possibility of life in this system. Still, past experience held out a glimmer of hope. Small dim worlds might lie within the ecosphere. By fluke the ship could be approaching a fertile world from the night side and miss it entirely. The craft waited and watched.

At one-sixth of a light-year out the computers were rewarded. A planet did lie within the ecosphere, its image an ambiguous smear of blue and brown and white.

The machines felt a spasm of relief and joy, a seething electric surge within. They were sophisticated devices—webs of impulses programed to want to succeed, yet buffered against severe disappointment if success eluded them.

For the moment they were—if the word quite applies—content. The ship flew on.

MARK CAINS spent most of the morning arguing with flight control engineers. Neither he nor Clyde Fixmer were willing totally to abandon the hypothesis that the Jupiter Orbital Viking—

JOV, coyly enough, lacking only an *E*—had malfunctioned. The engineers thought otherwise. They debated earnestly, pitting sweet cool reason against vague doubts. After several hours of diagnostic analysis and the clicking and burring of calculators, a complete run-through of the Viking's error-detection systems—and more—the two men gave in. There was no mechanical flaw.

The mysterious echo had faded away a little after three A.M. The Viking was no longer simply circling Jupiter—a month earlier its engines had been stirred awake and made to nudge it into orbit around Callisto, fifth moon of Jupiter. Now it spun an elaborate orange-slice orbit, lacing over the icy glare of Callisto's poles every eight hours.

Mark snapped a cracker in half, swallowed it with some steaming tea, sweet and acrid mingling. He closed his eyes to the *ting* and clatter of telemetry. He thought.

Suddenly he snapped his fingers. "That's it! If the signal came from a source near Jupiter, the echo must have faded because Callisto came between the two."

Fixmer nodded. "Quite reasonable. I thought of the same thing." He looked at his watch. "It's almost noon. Why didn't the echo return around seven this morning when the Viking came out from behind Callisto?"

Mark had the uncomfortable feeling that he was playing the role of dull-witted graduate student to Fixmer's learned professor.

"Well—maybe the other source is occluded by Jupiter itself."

Fixmer pursed his lips. "Maybe, maybe," he said, without giving a hint of whether the idea had previously occurred to him as well.

"Can't we rough out some sort of orbit for the source, given that much information?"

Fixmer nodded. But both men were starving. The calculation waited until after a quick lunch. Then, starting with the position of the Viking's main dish when the echo had begun, and adding a few armwaving arguments about the most probable orbital parameters a probe would attempt, they computed when it would move into view from the Viking again. Spherical trigonometry, calculus, angles, estimates—the answer was around 3:30 P.M., an hour away.

"Can we realign the Viking's main dish in one hour?"

"We'll have to," Fixmer said firmly. He was already picking up the telephone to call Operations Conrol.

"Tell them to rotate the camera platform, too," Mark said suddenly.

"You think there'll be anything to see at that range?"

Mark shrugged. "Could be."

"The narrow-angle camera?"

"Right. With filters ready to sequence automatically."

Fixmer spoke rapidly and precisely into the telephone, smiling confidently now that there were orders to be given, men to be told.

THE ship was still cruising in deep silence, far from the star's healing warmth, when it began to discern radio waves. More of the higher functions of the craft came to life. The weak signals were weighed and sifted.

After the usual sputtering noise of the star had been filtered away a faint trace of emission from the planets was detected.

The largest source was the world the computers had found before, the innermost gas giant. This was an optimistic sign, for the planet did orbit near the ecosphere. The ship drew the boundary for the ecosphere under the assumption that interesting planets had transparent atmospheres, but this was only a convenience. Gas giants had thick, deep atmospheres that boiled and streamed. They could warm themselves by gravitational contraction and by heat-trapping—the greenhouse effect. Life could well evolve in their skies and seas.

But such clotted blankets of gas and liquid meant awesome pressures. Life there rarely developed skeletons and thus could not manipulate tools. The ship's log carried many instances of this. And although gas giants might be populated, their inhabitants could not communicate because they had no technology—and the ship could assuredly not fly into such pressures in search of them.

A smaller source of radio waves lay farther inside the ecosphere. It was the third planet, blue and white. The signals were too faint for the ship to discern meaningful patterns, so they might well arise from atmospheric phenomena—thunderstorms and lightning flashes or perhaps radiation from a magnetosphere. Still, the world had an atmosphere, a hopeful sign. The craft flew sunward.

II

BY six P.M. the two men gave up. The Viking's main dish had been reprogramed to carry out a search pattern around the spot where the unknown radio source should appear. It was functioning. The data were coming in. All operations were proceeding smoothly. And there were absolutely no results.

The "target"—so the engineers

called it—should have reappeared at 3:37 P.M. according to revised estimates. Given the time lag in radio transmissions from Jupiter, Operations Control began receiving data slightly before 4:30 P.M. The main dish's search was completed within an hour. The narrow angle camera was not used—not enough technicians were free from monitoring other planetary satellites—and in any case, nothing indicated there was anything to see.

"Well, there's one good idea gone bad," Fixmer said, getting up from the monitoring console and pacing around in the aisle. "Either the whole thing is a pipe dream—"

"Or we haven't got the orbit right," Mark said.

"Yeah, there's always that."

"We can have another look tomorrow."

"Sure." Fixmer did not sound particularly enthusiastic. Ignoring the background murmur of the Operations Control bay, Fixmer paced some more and finally sat down again. The pair studied their green television screens, where sequencing and programing data were being continually displayed and erased.

"Look, I might as well try the camera," Mark said.

"What's the use?"

"Call it idle speculation." He was feeling tired and depressed and he wasn't looking for an argument. His wife had already called with the information that dinner was going to be hopelessly ruined. And the afternoon's mail had brought notice that the Internal Revenue Service was auditing his tax return for the previous year, 1990.

"Okay, try it." Fixmer threw down his pencil and got up. His white shirt was folded and wrinkled. In defeat he seemed more human to Mark, less an edgy executive carefully measuring his moves before he made them. "See you tomorrow," Fixmer said and turned away, shoulders slumped.

Mark shrugged at the console and began typing instructions.

BY THE time the craft entered the system it had a clear idea of the planetary population. There were nine planets in all, with perhaps a few more very near the star or very far from it—they did not matter, since obviously they would be inhospitable to life. Of the nine, four held promise. There was a completely clouded world near the inner boundary of the ecosphere. Next was the smaller radio-emitter—it showed clear oxygen lines and seemed to have oceans. A smaller world came next, dry and cold but with interesting markings.

But the craft's attention focused on the fourth possibility, the huge banded giant. Its radio emissions were random in frequency yet seemed keyed to an amplitude pattern that repeated nearly identically at a constant period.

The ship made a minor change in course. Gas giant or no, the radio pattern could not be ignored. It moved into the ecliptic plane and swung smoothly toward the great planet.

"WE DIDN'T see it because it was altering course," Mark said. Eighteen hours had passed and the optical and spectroscopic analyses from the Viking were in finished form—telemetry errors corrected—yellow squiggles on green tape.

"It gives off all the lines of a fusion torch burning pretty bright. At least six thousand degrees. The Viking got one clear look at it before Callisto got in the way again." He slid a glossy photo across Fixmer's desk.

"Not much to see," Fixmer said. The photo showed a tiny splotch against a black background. "And this was through the onboard telescope? Must be pretty far away."

"It is—or was. Almost all the way across the Callisto orbit. I don't think we'll be able to spot it again on the next pass, however."

"Any radio contact?"

"Nope. No time. And I couldn't get a good enough fix on it from that photo for a narrow radio beam like the one the main dish puts out."

There was a silence.

"You know, Mark, this is going to be pretty big news."

"It sure will."

"I think we ought to sit on it until I get a chance to speak to the director." Fixmer looked at him steadily. "There's not much question about what this thing is."

"It's not one of ours, if that's what you mean."

"Nor the Russians'. It's not from this planet."

"That's what I figured, but I didn't want to say it. Seems pretty wild."

Fixmer frowned. "Too wild, maybe. I hate to think what those religious fanatics are going to stir up about it. Or what the military will think. We don't know if that thing is peaceful, you know."

Mark looked irritated. He always did when political matters interfered with his work. "Listen," he said, "hadn't we better figure out where it's going before we worry about what to do if it gets here?"

THE gas giant had been a disappointment. The nonrandom

radio emissions were natural in origin, keyed to the orbital period of its tiny, reddish inner satellite. Methodically the craft analyzed the larger moons and found only ammonia ice fields.

Its usual method of search was totally dependent on monitoring radio signals. It was far easier to seek correlations among the background noise than it would have been to transmit tight, simply coded messages to any likely candidate planets in the system. So the ship had listened patiently, circling the huge planet. Nothing of interest had been received. The craft's programs did not allow for long stays in the vicinity of planets as large as this. A multitude of captured rocks and much dust circled the gas giant, making accidental collisions with the ship quite probable. Safety demanded that it not remain long.

The craft accelerated and moved out of the orbital plane. It set course for its next destination.

But as it did so a brief burst of radio signal caught its attention. The signal showed high correlations—though not enough to rule out a natural origin. There were many well-ordered phenomena in nature.

Nevertheless, following standing orders, the ship retransmitted the same electromagnetic signal back toward the source. This happened several times, quite quickly, but no sign came from the source that the ship's transmission had been received. Then, abruptly, the signal stopped.

The ship pondered. The signal might well have had a natural cause, particularly in view of the intense magnetic fields surrounding the giant gas planet. Yet without further investigation there was no way to decide.

The source could be the fifth moon, a cold and barren world. The ship was aware that this moon was tide-locked to the gas giant, keeping the same side eternally facing inward. Its revolution with respect to the ship was therefore rather slow. It seemed unlikely that the source of the radiation would have slipped below the visible edge so quickly.

Too, the signal strength was low, though not so weak that the ship could not have detected it before. Perhaps it was another radiation pattern from the belts of trapped electrons around the planet, triggered by the fifth moon rather than the first.

The ship thought and decided. The hypothesis of natural origin seemed by far the most likely. It would cost fuel and time to check further and the region near the gas giant was dangerous. Far wiser,

then, to continue accelerating.

It filed the information and moved sunward.

"YOU'RE damned right I object to it," Mark Cains said.

"Look, Mark, I sympathize with you completely. We're scientists. We don't like this secrecy business." Fixmer chose his words carefully. "But at the same time I can understand the need for tight security in this matter. If you—"

"For how long?" Mark asked sharply.

"Long?" Fixmer hesitated, the rhythm of his prepared speech broken. "I don't really know," he said lamely. "Perhaps for the indefinite future. The President didn't say." His voice took on a hardness.

"Does the President think anybody can suppress news about something this big forever? It's been four months now. I don't think all the men who know about the *Marauder* are going to keep quiet much longer."

Fixmer casually leaned back in his chair and studied Mark across the desk. "You aren't hinting that you might—"

"Hell, no, I'm not going to spill it. But the whole idea is stupid."

"You wouldn't feel that way if you had been with me at the White House, Mark," Fixmer said solemnly.

"I wasn't invited."

"I know. I understand NASA wanted to keep down the number present for security reasons." The trip had been the high point of Fixmer's career and Mark suspected he burned to tell someone about it. But only Mark and the director of the laboratory were privy to the information and the director had been present at the White House. Mark had listened to the full story without comment until now.

"The way the President put it, Mark, was quite convincing. You know the political situation. We haven't licked the Depression yet, really. And those religious fanatics, those Agents of God or whatever—"

"New Sons of God."

"Yes. Those lunatics have already got a U.S. Senator to speak for them. They could kick up a lot of dust. Plus the fact that the military people are pretty nervous about this thing."

"That's ridiculous. No species from another star is going to come all this way to drop a bomb on us."

"You know that. I know that. But some of the generals are worried."

"Men with limited imaginations."

"Maybe." Fixmer turned in his swivel chair and gazed out at a pale

yellow February morning. "There is one factor that doesn't require imagination, though. The elections are on and the President is facing some stiff opposition. He didn't do too well in New Hampshire, you know."

Both men stared moodily at the eucalyptus tree that dripped steadily in the light gray fog outside the window. Fixmer tapped his pen on the metal desk and the rhythm echoed hollowly in the still room.

"I still think we have an obligation to tell the rest of the human race about this. It's not just another strategic element for the Joint Chiefs to figure out," Mark said.

"I'm sorry you feel that way, Mark."

Mark made no reply. Outside, drops pattered soundlessly in a moist, chilled world.

"You do acknowledge the need for secrecy in this, don't you? I mean, you will maintain security despite your personal feelings? I would—

"Yes, yes, I'll go along," Mark said testily.

"Good, very good. Otherwise I would have to remove you from the group. Nothing personal, of—"

"Yeah, I know. That's the only reason I agree, so that I can stay." Mark got up to leave, smiling grimly to himself.

"Well, speaking for myself, I'm happy that you're staying. NASA doesn't want any new personnel brought in on this if we can avoid it, and it's going to take a lot of work to find out what happened to that thing."

"The *Marauder*," Mark said.

"Uh, yes. About that. There was a little concern about attaching such a dramatic name to it. Might excite interest, you know, if anyone should run across it accidentally. The Vice President suggested we give it a number—J-Fifteen. With fourteen Jovian moons discovered, this is another.

"Um." Mark shrugged.

"But the main interest, of course, lies in finding out where we can expect it next."

"I think I already know," Mark said, pacing up and down the room, now lost in thought, his humorless smile gone.

"Oh?"

"It headed for Mars. I'm pretty sure of that from the Doppler shift measurement of the fusion flame. Jupiter amd Mars are set for a good configuration now and the *Marauder's* velocity was adquate to get it to Mars early this month. I can't be sure, of course, without knowing more about the *Marauder's* capability—and whether it accelerates throughout the whole voyage—but I think

my conclusion is a good bet."

"It's near Mars, then?" Fixmer leaned forward, his administrator's manner forgotten.

"Not any more."

"I don't get it."

"While you were back east I got time on the Mars Orbiters. Their camera and telescope rigs are just as good as the Jupiter Viking's and —remember that blanket budget you gave me last month? I carried out a search for the *Marauder's* fusion flame. Last night I found it."

"What?" Fixmer stood up. "You should have told me."

"I am telling you."

"You should have said something earlier!"

Fixmer hitched up his belt and drew in his stomach, not looking directly at Mark. Mark guessed that Fixmer was uncomfortably aware that he had rushed into the Washington story without giving Mark chance to say anything. Mark stopped his pacing and stood with arms folded, a faint sour taste in his mouth.

"I'll have to inform NASA and the Joint Chiefs of this. If the object is in orbit around Mars now—"

"It isn't," Mark said, unfolding his arms and relaxing.

"I thought you identified the spectrograph lines of its flame."

"I did. But the *Marauder* was outward bound, away from Mars. The flight path was pretty clear. I think it must have done a gravitational rebound, just looping in for a quick look and picking up momentum from the encounter, like the Grand Tour probes."

Mark leaned against the wall of Fixmer's office, not caring that his blue sweater caught drifting swirls of yellow chalk dust from the nearby blackboard. He was glad for once to have Fixmer on the defensive. Perhaps that way the man could be deflected from his fascination for generals and presidents.

Fixmer looked puzzled. "Where is it going next? This could be of crucial importance. I'll have to call Washington right away." He licked his lips. "Yes, right away." He looked at Mark. "Well, what can I tell them? Any idea where it will go?"

"Venus," Mark said.

THE ship had known even before leaving the banded gas giant that the next world inward was barren. Meanwhile the blue-and-white world demanded most of the craft's attention. It satisfied all requirements for life. More, radio noise from it carried a clear non-random component. There were many signals. Translation proceeded slowly. But as the craft

neared the dry fourth planet it reached a verdict: the third world held life that used radio.

A debate ensued within the ship.

Matters of judgment were being decided by vote among three equally able computers until intelligent life was found—then the highest elements of the craft would be warmed into life.

One of the computers held out for an immediate change of orbit, to skip the dry world and drive on to the radio-emitter. One other felt that the second planet, shrouded in thick, creamy clouds, might well support intelligent life—indeed, past experience made the hypothesis quite probable. And in any case, was it not a better idea to arrive at the blue world with as much information about this solar system as possible?

The third computer wavered for a moment, then cast its vote with the second. It also pointed out that a survey of the inner clouded planet would leave more time for decoding the signals from the third world, so that a better approach could be made.

The decision was hurried, since the parched red disk ahead was growing quickly. Here and there on its surface a blotch of color promised a thin, moist refuge for life, but most of the world was dead hills of drifting dust. The ship completed its transit in a few hours, storing the collected data on tiny magnetic grains before turning back to the inner planets.

The craft damped the rumble of its bright flame and began the long glide toward the brilliant white world, but its electromagnetic ears strained to catch whispers from the other. The signals from it were scrambled—and learning a language without common referents is a task that must take time.

The machines set to work eagerly.

III

"THERE it is," Mark said.

The small cluster of men around his console leaned forward. On the television screen in front of them a telemetered photograph was being drawn, line by line. At the top edge of the screen was a tiny point of light, scarcely more than a few dots on the picture tube.

"You're sure?" a man from NASA said.

"It's not a star," Mark said, "and it wasn't there on the last pass this particular Orbiter made. I think it's the *Marauder.*"

"J-Fifteen," Fixmer said.

"Wait a minute—the spectrographic readings are coming in," Mark said. A line of data was printed out, overlaying the photo. The men read it intently. Most of

them were unable to make any sense of it, since the information was a coded transcript of spectral intensity versus wavelength and few of the men had enough training even to know what to expect.

"Looks complicated," one of them muttered.

"That clinches it," Mark said tensely. "It's pretty hot—must be the fusion flame."

There was a moment of silence. Then one of the men asked, "There's no chance of error?"

"I don't think so," Mark said.

Fixmer said, "He's right."

"Then, gentlemen, I think we must start preparing. That thing will come here next. We must be ready for it." The man wore civilian clothes, but held himself stiffly erect and had the air of one whose orders are followed. There were several others like him in the party. They nodded in agreement.

"Precisely what do you mean?" Mark asked evenly.

"Mr. Cains," the man said blandly, "I take it you people feel this J-Fifteen thing is searching for life. It has reached Venus. It's going to have to come here. But we don't know what it might try to do. It may try to land, bringing unknown diseases with it. The military will have to stop such an attempt."

Mark ignored Fixmer's raised finger plainly telling him to remain silent.

"How?"

"Well, we surely cannot allow it to approach in too close an orbit—"

"And how close is that?"

"That is something I'm afraid we will have to determine for ourselves," the man said coldly. "Meanwhile—" he turned to the rest of the group—"I think the President should be informed. This area is not secure for further discussions in any case. I suggest we retire upstairs."

"I'll stay here," Mark said. "We have to find out if it's going to orbit Venus or just fly by."

"Agreed—I'll stand by, too," Fixmer said nervously. He looked at the military man. "If it is just the same to you, sir—"

"Very well," the man said. "This way, gentlemen." The group left. They moved with a heavy, calm assurance.

Mark was already absorbed in the incoming data displayed on his screen. This section of the Operations Control bay was now sealed off with plywood walls and the consoles around him were manned by men who knew only enough for them to do their jobs.

He found it difficult to separate in his mind the tension of the "J-

15 Project," as it was officially called, from the political turmoil he knew was scourging the world outside. It was late August and the primaries were going badly. One of the major parties had broken into angry factions, some of them violent. The President was being heavily guarded. The New Sons of God had gotten wind of something strange taking place in NASA and were already preaching sermons about dire happenings in space. They knew nothing concrete, but Mark had some premonition of what would happen if the *Marauder* orbited Earth —then it would be impossible to conceal the truth. An amateur with a telescope would be able to see the ship.

And now the Joint Chiefs had come into the picture.

Mark donned his microphone attachment. He spoke quickly into it, ordering control of the remaining Venus Orbiters—three of them —over to his board.

"What are you doing?" Fixmer asked, bending over to look at the screen.

"Trying to keep the *Marauder* in sight," Mark said.

"Do you think it is going to orbit?"

Mark shook his head. "No way to tell." Around them the technicians and engineers were hunched over their consoles. Every instruction that came from Mark's board had to be interpreted and checked by them to insure that nothing disastrous was done to the Venus Orbiters by accident. The tandem arrangement had been specially rigged for this moment. Mark was sure that by now some of them must be beginning to suspect the truth.

In a few moments his calculations were complete. Mark narrowed his attention to Venus Orbiter II, which was just beginning to sense the *Marauder's* fusion image over the Venusian horizon. He took control of the Orbiter's main radio dish and gave it new coordinates for aiming.

Abruptly, the main signal from the Orbiter stopped. The diagnostic signal remained, since it came from the smaller dish. It was a blur of stuttered tenor squeals.

"What is going on?" Fixmer wanted to know.

"Hold on a minute," Mark said.

He waited until the dish platform was locked on the *Marauder's* coordinates. Fixmer was peering at him, unable to understand what was happening.

Mark checked to be sure the line was open. Then, methodically, he began to tap out a series of dots and dashes.

THE ship was braking smoothly, preparing to enter an elliptical orbit, when the strong radio pulse found it.

The pattern was simple and obvious: on, off, on on, off, on on on, off—the sender was counting out the numbers. A grouping of pulses that might be a rudimentary alphabet followed.

The ship immediately returned the signal. There was an instant response—the same pattern started over again, this time a little faster.

That was enough. The ship quickly located the source of the signal—it was circling the planet not far above the atmosphere. One of the ship's computers had theorized that the cloud deck was too thick and too heavily ionized at the top to allow radio waves to escape—this hypothesis seemed confirmed by the circling satellite, which clearly resembled a beacon for approaching spacecraft. The ship recalled a similar instance from an earlier contact with an amphibian race whose world, too, had been heavily clouded and whose inability to see the stars had retarded its ventures into space for many centuries.

The three deciding computers voted unanimously to alter the craft's orbit and approach the beacon satellite. The question of whether this planet was inhabited could be settled later. The overriding fact was that the ship had been signaled and answered and that an elementary interchange was taking place.

The craft computed a new course and executed it even as it continued conversation with the satellite. It began storing electrical power for the day when it would have learned enough about this new race—then it would transmit a powerful pulse back to a distant relay point, back to whoever so long ago had built it. After that events were up to intelligences greater than its own.

For the moment the machines felt a surge of anticipation. The contact just beginning would again call forth their most subtle faculties. Their higher functions would be revived. They would become immersed in elaborate chains of deduction and inference—the experience would be quite pleasurable.

"ARE you crazy?" Fixmer asked loudly. He reached for the switches on Mark's console. Mark blocked his arm.

"Don't try it," he said carefully.

"You are taking action in a matter of national security without consulting—"

"I'm saving our necks, is what you mean. The *Marauder* has al-

ready changed course slightly. It's going to stay near Venus for a while at least. And it's answering my code."

Fixmer clenched his fists. He did not know whether to try to stop Mark or not, but as he thought it over he realized that the job would not be easy. Mark was big and, beneath his calm manner, coldly resolved.

Fixmer shifted his weight slightly. Mark stood up and pushed his chair away, blocking the console with his body. Fixmer noticed that the technicians around them were staring, not knowing what to make of the two tense men. He felt slightly ridiculous. He realized that his hands were clenched and deliberately he relaxed them. He took a step back.

"Okay. You've done the damage by now, anyway. I'll let the authorities deal with you."

"I'm sure you will."

"I don't know what you think you're doing."

"Keeping the *Marauder* away from Earth and where the lunatics can't get at it. If we can keep it thinking that Venus is inhabited and that the radio messages are originating from its surface—maybe it won't come here. Maybe we can convince it that Earth is just a colony."

Fixmer stared at Mark for a moment, then turned abruptly and picked up the nearest telephone. He dialed four digits and said, "Captain? Fixmer. I want two security men down here on the double. That's right, main bay. Security violation. Bad one. I think—okay."

He hung up and looked at Mark. He shook his head. "I don't understand you, Mark. You've always seemed a responsible man, level-headed. Making decisions about this matter—" he glanced around at the engineers and raised his voice—"isn't your responsibility. You—"

"I guess I feel I have higher responsibilities than you recognize," Mark said quietly.

"Bull. You—"

But Mark did not appear to hear what Fixmer was saying. He looked back at his console, thinking. And after Fixmer had run down Mark said slowly, "You know, there's something I didn't figure when I planned this. Suppose the *Marauder* sends all that phony information back to whoever sent it? They'll come here looking for creatures who can inhabit a desert planet—seven hundred degrees at the surface—with only carbon dioxide to breathe."

"What of it?" Fixmer said sharply. He was watching the doors, waiting for the security

officers. His right foot tapped nervously.

"We'll seem like pretty fierce creatures, won't we? Dragons. Our visitors would come armed to the teeth—if they have teeth—and ready for anything. And judging from that general I saw—" he gestured contemptuously—"they had better be lucky."

"You are stupid, Cains, just stupid," Fixmer said viciously. "You're living in your own air-tight world. Just what did you hope to gain by this little gesture?"

"Time."

"That's ridicu—"

"Time to think. Somebody has to figure out a way to put sense into this dinosaur agency. The people in charge are simply running on adrenalin. Knee-jerk responses aren't going to work—not when you're dealing with something totally unknown like the *Marauder*. This situation calls for intelligent thought, time and luck."

A door at the back of the bay opened and two men with hard faces came in, looking quickly around. They wore sidearms.

Mark ignored them. "Yeah, luck. I agree we'll need luck."

IV

MR. ICHINO paused at the entrance to the Pit. The calm murmur of technicians conversing mingled with the *ping* and chatter of typewriter inputs. The Pit was dark. Its air was stale. Hooded consoles made pools of light where men sat monitoring, checking, editing the river of information that flowed from this room, converting it into the dancing rhythms of electrons riding electromagnetic wings to the *Marauder*.

He noted a wall clock. He had twenty minutes before the meeting. Mr. Ichino sighed, willing himself to relax and not think of what lay ahead. He clasped his hands behind him and walked slowly into the Pit, letting his eyes accustom themselves to the gloom. He paused at his personal console, froze a scrap of the transmission and read:

> In the service of the Emperor he found life and fought the barbarians and beat them into submission. When the Emperor so commanded he fought strange and evil fairy creatures and these he conquered. Dragons he slew, and giants. He was willing to do battle with all enemies of the land, mortal or animal or creatures from another world. And he was always the victor.

He recognized the passage from the Japanese legend of Kintaro, even in this westernized form. The *Marauder* had asked Mr. Ichino several days before for more of the ancient literature of Japan and he had brought in all the texts and translations he could find in his collection. They were being transmitted when time allowed. Mr. Ichino wondered idly if this had been selected especially by a programer, since it contained reference to "creatures from another world." Such an action would be lamentably typical—most of the men here understood nothing of what the *Marauder* wished to know.

Mr. Ichino tapped his front teeth with a finger, thinking. The square, stylized yellow type squatted against the green of the tube, a strange and alien medium for the delicate thread of a fairy tale. He wondered how it would be read—*was* read, by now—by a thing of copper and germanium circling Venus. All this—the quiet intensity of the Pit, the compressed minutes he had lived through for months now, the unbalanced feel of what he was doing—seemed parts of a jumbled puzzle. If he had but a few days to sort it out, to fathom what kind of being could see so quickly to the core of Mr. Ichino's personal experience and extract it. But time was short.

He moved on. A technician nodded. An engineer saluted silently. Word would spread that the old man was in the Pit for his daily visit—the men would be a trifle more alert.

Mr. Ichino came to a large graphics tank and studied the intricate work being done inside it by the computer. He recognized the print at once: *Nude in the Sunlight,* Renoir, painted 1875 or 1876. Mr. Ichino had selected the painting only two days before.

Light filtered to a blue-green cast streaked across the breasts and arms of the naked girl, strangely altering the illuminating red glow of the skin that was Renoir's unmistakable signature. The girl gazed pensively downward, caught by the artist as she grasped some ill-defined cloth. Mr. Ichino looked at her for a long moment, savoring the ambiguity of her expression with a wistful romanticism he knew as an old friend. He had been a bachelor all his life.

And what would the *Marauder* make of it? Mr. Ichino did not venture to guess. It had responded well to *Luncheon of the Boating Party* and asked for more—perhaps it mistook the painting for a sort of photograph, despite his explanation of the uses men made of art.

He shook his head as he watched

the computer carefully break down the picture into tiny squares of color. The *Marauder* spoke little—many of Mr. Ichino's ideas about it were pure deduction. Still, there was something about the pattern of requests the *Marauder* made.

"Anything you would like to see especially, sir?" a technician asked at his elbow.

"No, no, everything seems to be going well," Mr. Ichino said softly, startled out of his contemplation. He waved the man away.

OTHER consoles flickered as the men in the Pit transmitted data to the *Marauder*. At the moment they were working their way through a fresh edition of an encyclopedia, he recalled. Simply radioing the material would have been simple, but the men he supervised were charged with editing each line that found its way into code. The President had accepted the recommendation of the Executive Committee that no detailed scientific or technical information be given the *Marauder*—the Pit had been built to ensure it.

Most of the consoles were operating with Mr. Ichino's own Code 4, a specially designed vocabulary and matrix of symbols that afforded high information density in each transmission to the *Marauder*. The Executive Committee had searched out Mr. Ichino in the days following the Cains incident, desperately trying to find a cryptologist who had enough experience with high flux signaling. Code 4 had been relatively simple to lay out, since it drew upon the codes Mr. Ichino had already developed for scrambled transmissions to Hipparchus Base. It was simple and flexible and seemed fairly secure from the Russians and Chinese and whoever else was listening in, but of course it had limited range. It soon became inadequate for the questions *Marauder* asked—photographs and a wider vocabulary were the only solution. And this was a problem.

Because security was tight, many of the encoders and technicians had not been told about *Marauder*. They thought they were working on something related to Hipparchus Base on the moon. So it fell to Mr. Ichino himself to speak to the *Marauder*—and to another cryptologist, John Williams, who had been brought in to ease the strain. Mr. Ichino had little contact with him, since he managed the other half of their round-the-clock schedule. The *Marauder* never slept.

But Williams would be at the meeting, Mr. Ichino reminded himself. He stopped amid the comforting buzz of the Pit and made a

quick survey of the remaining consoles. Images flickered there—a three-masted schooner in outline, stiff figures modeling sixteenth century clothes, clouds layered over a boiling ocean. A river of information was being directed at the *Marauder* to correlate as it liked.

He turned and made his way down a line of swivel chairs to the doorway, where he was passed in by a guard. As he emerged into a bright corridor he reached involuntarily for the lump in his jacket pocket and brought it out—a rubbing stone. He kneaded it with his right hand, feeling the smooth cool textures and focusing on them, calming himself by lifelong habit.

He walked. Mr. Ichino felt out of place in these garish corridors. He hated the plastiform walls, the thin partitions, clatter of typewriters, distant whisper of air-conditioning. He should be in a university by now, he thought, spending patient hours in a cloister far back in shadowed library stacks. He was aging—and the higher he rose the more abrasive the men he dealt with, the more subtle their methods of combat. He was not made for this game.

But he played—he always had. For love of the crystalline mathematical puzzles he found in cryptography, for an avenue of escape—it had, after all, brought him from an immigrant family in small-town Oregon to Berkeley, to Washington and now, finally, to Houston. To meet the *Marauder*—and for this the journey had been worthwhile.

He passed another guard and entered the conference room. No one was there—he was early. He padded softly over thick carpet to the table and sat down. Mr. Ichino's notes were in order but he inspected them again, without focusing on the individual words. Secretaries came and went, placing yellow scratch pads and pens before each chair. An urn of coffee was wheeled in and set in a corner. A slight hollow pop disturbed Mr. Ichino's meditations—someone was testing the pickup microphones spaced around the conference table.

A SECRETARY gave him the agenda and he studied it. There was only a list of attendees and no hint of the meeting's purpose. Mr. Ichino frowned as he read the names—there would be men and women here whom he knew only as figures in the news magazines.

And all because of a vessel millions of miles away. It seemed midly ironic, considering the immediate and serious problems of the administration in Washington.

But Mr. Ichino did not dwell on politics. His father had learned noninvolvement in Japan and had passed the lesson on. Mr. Ichino remembered his reluctance, while an adolescent, to join the poetry and language clubs in high school, because he had felt the sharing of the tenuous emotions these things brought him, the nuances they called up, could not be a public thing. To write about them, perhaps—that was possible. But how describe *hikau* except in another poem? Anything more—slabs of words, sentences of explanation without grace or lightness of touch—would be to crush the butterfly beneath a muddy boot.

He had joined the Poetry Club finally out of sheer bravery—though not French Studies, the other possibility—and had found in it nothing to fear. Girls had read their stilted lines in high nervous voices and had sat down to approval, followed by mild criticism from the teacher/sponsor. Boys had spoken theirs hopefully—there had been only three boys in the club—and young Ichino had learned what he had hoped to—learned to speak before a peer group in his halting English, to define and explain and finally to disagree.

That had been before mathematics, before the long years of concentration at the university, before Washington and the dozens upon dozens of machine codes he had devised, the monographs on cryptography that had consumed his days and nights.

"Mr. Ichino, I'm George Evers," a deep voice said.

Mr. Ichino stood up quickly with a sudden release of unexpected nervous energy, murmured words of greeting and shook the man's hand.

Evers smiled thinly and regarded him with distant assessment. "I hope we're not taking too much of your time today. You and Mr. Williams—" he nodded as Williams appeared and walked to the coffee urn, long legs moving awkwardly—"are our experts on the day-to-day behavior of the *Marauder*. We thought we should hear what you have to say before proceeding with the rest of the meeting."

"I see," Mr. Ichino said, surprised to find his voice almost a whisper. "The letter I received yesterday gave me no details, so—"

"On purpose," Evers said jovially, hitching thumbs into his belt. "We merely want to get an informal idea of what you think that thing is up to. The committee here—the Executive Committee, actually, that's the President's title for it—is faced with a dead-

line and I'm afraid we're going to have to come to a decision right away, sooner than we thought."

"Why?" Mr. Ichino asked, alarmed. "I was under the impression that there was no hurry."

Mr. Evers paused, turned to wave to other men entering the long room. Mr. Ichino had the sudden impression of a man impatient to be off, to have the waiting finished, as though Evers knew the decision ahead and wanted to push on to the action that would follow. He noticed that Evers's left hand, casually resting on the back of a chair, had a slight tremor.

"That machine isn't willing to wait any more," Evers said, turning back. "It gave us the word two days ago."

Before Mr. Ichino could reply, Evers nodded and moved away, clasping hands with the men in suits and pastel sports jackets who were filing into the room. Williams, seated directly across the table, sent Mr. Ichino a questioning glance.

MR. ICHINO shrugged elaborately, glad that he was able to appear so casual. He looked around. Some of the faces he recognized. None were as important as Evers, who bore the ambiguous title of Presidential Advisor. Evers moved to the head of the table, still talking to the men nearest him, and sat down. Others who had been standing took their places and the secretaries left the coffee urn to fend for itself.

"Gentlemen," Evers said, calling them to order. "We will have to hurry things along, as you know, in order to meet the President's new deadline. I spoke with him this morning. He is very concerned and looks forward to reviewing the recommendations of this committee." Evers sat with his arms folded on the table before him, letting his eyes rove up and down the two lines of men. "You have all seen—excuse me, all but Mr. Williams and Mr. Ichino have seen—the messages received from the *Marauder*, requesting a change of venue." He paused for the ripple of polite laughter. "We are here to go into possible scenarios that could be initiated by the *Marauder's* arrival in near-Earth orbit."

He gestured toward Mr. Ichino.

"These two gentlemen are guests of the Committee today and are here solely to bring us up to date on the nonessential information the division has been sending the *Marauder*. They are not, of course, members of the Executive Committee itself."

He smiled briefly at the two men and focused again on the ranks

aligned along the table, yellow pads scattered at random before them. A few were already taking notes.

Evers sat back, relaxing. "Ever since the Cains incident, the *Marauder* has orbited Venus. I'm sure we all agree that it was regrettable that the story fed the *Marauder*—a civilization beneath the Venusian clouds and all that —was so obviously full of holes."

"It was never fooled," a thin man said at Evers's left.

Eyes turned to him. Mr. Ichino recognized him as a leading games theorist from the Hudson Institute. He wore poorly fitted tweeds and puffed an ornate pipe.

"I believe the *Marauder* has been studying us quite competently from where it is," he said slowly. "Look at what it asks for from the division here—a welter of cultural information, photographs, things like that. No science or engineering. It can probably deduce that sort of thing, if it needs to, from radio and TV programs."

"Quite right," a man farther down said. There were more assents.

"Well, that may be," Evers said, "but we are civilians and I think the military has an equally likely theory. This ship may not give a damn about our level of technology for the same reason we wouldn't worry about the spears of South Sea natives when we wanted to use their island as a base."

"I'd worry," said a man at the other end. "Those spears are sharp."

Evers smiled. "Well, we can cover these matters later. The point is that the *Marauder* wants to approach the Earth for a better study of our biosphere—or so it says. It promises to stay at a safe distance. It doesn't buy the life-on-Venus story and following your earlier suggestion—" he nodded toward the man in tweeds—"the President authorized me to transmit to the *Marauder* an admission that we did try to decieve it."

A low flurry of comment ran around the room, most of it favorable. Mr. Ichino knew others had been negotiating with the *Marauder*, but these details were new.

"After all," Evers went on, "we may as well admit the obvious. I wrote the message myself—there was no time to consult this Committee—and explained that at first we didn't know whether the *Marauder* was friendly. I did not mention that we still don't know." He smiled. "The *Marauder* replied with a request to orbit Earth. Upon my advice the President proposed that the *Marauder* first orbit the moon for a while, so our

men there can get a good look at it. A sort of mutual inspection."

"What for?" the man in tweeds asked. "We could do the job better from Earth."

"True," Evers said. He tapped a pencil on the table and Mr. Ichino could see that his fingers trembled. "But there is an alternative plan the Joint Chiefs have in mind. The plan works best if the *Marauder* pauses to orbit the moon. They regard it as highly suspicious that the *Marauder* says it knows nothing of its own origin. The Joint Chiefs feel that it may simply be learning all it can about us without risking itself by giving away potentially useful information. I can't say anything more right now—" he glanced at Mr. Williams and Mr. Ichino and looked quickly away—"but I'll bring it up later in the meeting. I'll say only that the President thinks the plan has some merit."

Mr. Ichino frowned. The Joint Chiefs? He tried to understand the implications of what Evers had said and lost track of the proceedings until:

"—we'll hear first from Mr. Ichino, who has shared the encoding and selection of information for the *Marauder*. Mr. Ichino?"

HIS thoughts were a scramble. He said very carefully, "There is so much the *Marauder* wants to know. I have only begun to tell it about us. I am not by any means the best qualified—"

Mr. Ichino stopped. He looked down the table at them. He had always had to hold himself in check before people like these, he realized, men with closed faces. He could not speak to them, let the soft things within him come out.

"I have found," he said haltingly, his mind filled with fleeting impulses and images, "something I never expected."

He looked at their blank eyes and set faces.

They were silent.

"I began with a simple code, based on arithmetical analogies to words. The machine picked up the system at once. We began a conversation. I learned nothing about it—that was not my assignment. But what struck me—" Where were the words? "What struck me was the nimbleness it displays. We exchanged elementary mathematics, physics, number theory. It gave me, I think, a proof of Fermat's Last Theorem. Its mind—if that's the word—leaps from one subject to another and is perfectly at home. When it spoke of mathematics it was cool and efficient, never wasting a word. Then it asked for poetry."

The man in tweeds was watching

Mr. Ichino intently, sucking on his pipe, which had gone out.

"I do not know how it discovered poetry. Perhaps from commercial radio. I told it what I knew and gave it examples. It seemed to understand. Next it began to ask for art. It was interested in everything from oils to sculpture. I undertook the encoding problems involved, even to the point of fixing for it the right portion of the electromagnetic spectrum for viewing the pictures we sent."

He spread his hands and spoke more rapidly. "It is like sitting in a room and speaking to someone you cannot see. One inevitably assigns a personality to the other. Each time the *Marauder*—it wants to know everything—changed the subject matter under discussion there was this feeling of differentness, as if—" Mr. Ichino saw the cold, distilling eyes of Evers and hurried on, stumbling over his words. "It was as if I were speaking each time to a different personality. In turn a mathematician, a poet—he even wrote sonnets, good ones—a scientist, an artist—he is so large, I—"

Mr. Ichino paused. He felt the air tightening around him, the men at the table drawing back. He was saying things beyond his competence. When had the machine become "he" in his mind? He was only a cryptographer, not qualified. . .

Across the table from Mr. Ichino, Williams stared into the space between them, distracted. He said slowly, "I see, I see, yes. That is what it is like. I had never thought of it that way before, but—" Williams put both hands flat on the table, as though to push himself up. He looked with sudden energy up and down the table. "He's right, the *Marauder* is like that. It's many personalities, operating almost independently."

MR. ICHINO gazed at this man who shared his labor and for the first time saw that Williams, too, had been changed by contact with the *Marauder*. The thought lifted his spirits.

"Independently," Mr. Ichino said. "That is it. I sense many aspects to his personality, each a separate facet. And behind them there is something—greater. Something that I cannot visualize."

"It's bigger," Williams broke in. "We're seeing parts of the *Marauder*, that's all." Both men stared at each other, unable to put into words the enormity they sensed.

Evers spoke.

"I really think you gentlemen have strayed from the subject at hand. I asked you to describe the

range of input the *Marauder* requested, not your own metaphysical reactions to it."

A few nervous chuckles sounded. Around the long table Mr. Ichino saw minds sheltered by narrowed eyes, judging, weighing, refusing to feel.

"But this is important—" Williams began.

Evers raised a hand to cut him off. Mr. Ichino saw in the gesture the final proof of why Evers was a Presidential adviser and he, Ichino, was not.

"I will thank you, Mr. Williams, to leave to the Executive Committee the determination of what is or is not important."

Williams's face went rigid. He looked across the table. Mr. Ichino took a deep, calming breath and struggled out of his confusion.

"You have already decided, haven't you?" he asked Evers. He looked at the man's face and thought he saw something shift deep behind the eyes. "This meeting is a sham," he said with certainty.

"I don't know what you think you're—"

"That may be true, Mr. Evers—you do not know. Perhaps you have not admitted it to yourself yet. But you plan something monstrous, Mr. Evers, or you would listen to us."

"Look here—"

"You do not want to know what we know."

There was an uncomfortable rustle in the room. Mr. Ichino held Evers with his eyes, refusing to let the man go. The silence lengthened. Evers blinked, looked away, too casually brought a hand up to touch his chin and hide his mouth.

"I think you two had better go," Evers said in an oddly calm voice.

There was no other sound. Mr. Ichino, hands clasped tightly to the notes before him, felt a sudden strange intimacy with Evers. In the lines around the man's mouth he read an expression he had seen before—the trademark of the quick-witted executive—intelligent—who knew with a sure instinct that he carried the necessary toughness to decide when others could not. Evers loved the balancing of one case against another, the talk of options and probabilities and plans. He lived for the making of hard choices.

Mr. Ichino stood up. For such men it was impossible to do nothing, even when to do nothing was best. Power demanded action. Action meant drama and drama—was glory.

Now it is out of my hands, he thought.

Williams followed him out of the

room, but Mr. Ichino did not wait to speak to him. For the moment he wanted only to leave the building. Forebodings seethed in him. He doubted that he would be allowed back in the Pit to talk to the *Marauder* again—he was now a risk. The thought troubled him but he put it aside. He signed out at the nearest exit and rushed into the thick damp air of Houston. It was almost noon.

He still carried the yellow pad and his notes, pages crumpled in his fist. Going down the steps of the building he felt a welling tide of something he could instantly name and, dropping the pages, dropping all, he ran. He ran.

V

IT WAS pleasant to drift, restrained by the buckles and pads, and spin soft coils of illusion. The random splotchings of craters wheeled below, each slipping under the arched horizon just before he had memorized it. Old friend lost without a farewell handshake—memory of a million such. *When shaking hands, remember your manners, Kenneth—take off your glove first* (cold snatching at your fingers) . . .

His mind wandered.

Which wasn't right, he told himself. Kenneth M. Walters, called Ken or sometimes Kent, oddly enough—should stay alert. He was not here for the view. Nor did segmented tanks of liquid oxygen ride to the side of him, above, below, directly behind, for his own coy amusement. They waited for the signal, a soft pressure on a button, to burn him straight into history.

Or into the abyss beyond Earth's web, he thought. Hipparchus Control—awesome name for six sheet-metal huts buried in twenty feet of dust—had been a touch vague about the margin of error they had allowed for getting him back. Maybe there wasn't any.

Off to his right the northmost rim of Mare Orientale slid into view, slate-gray sheets of lava cooled in their convulsions. The crater's center lay a good fifteen degrees south of his near-equatorial orbit, but even at this low altitude he could see the marching mountain ranges that curved away from him, inward. He wondered how big the rock had been that caused that eerie effect: crests of ancient waves frozen into mountains. An enormous bull's-eye in the moon's ribs. Assassin's knife. Death from an asteroid.

"Hipparchus here," a voice rattled and squeaked in his ear. "Everything okay?"

Kenneth Walters waited a mo-

ment and then said, "Shut up."

"No, it's okay. We've computed it. This transmission is in the moon's radio shadow, as far as the *Marauder* is concerned. It can't pick up any of this."

"I thought we weren't taking chances."

"Well, this isn't exactly a chance." The voice sounded a bit peevish. "We just wanted to see how things are going up there. We don't get any telemetry. You could be dead for all we know."

He could not think of anything to say to that, so he let it go. The radioman—who was it, that short guy, Lewis?—seemed to think he was just making a neighborly call. The phones crackled and sputtered in his ears for a moment while he waited out the other man. Finally the voice came a little more strongly.

"Well, we have a good fix on the time, anyway. About five hours away. Squirting the scoop to your LogEx now."

There was a hum from the electronics beside him as the computer absorbed the orbital data. He was sure now it was Lewis down there—the man was addicted to jargon.

"Have you rechecked your missiles?" Lewis asked.

"Yes—Uh—roger."

"We just had a squirt from Houston to remind you about priorities. Any piece of it is better than nothing, so hold off on the nuke if you can."

"Roger."

"Feeling okay? You've been up there more than a day now. It must be getting cramped."

"Ever been to Mars?"

"Huh? Oh, I see what you mean. But you had the works then, drugs, full hypno. Say, I never did ask you about that. I mean, how it felt to be under that long."

"No, you never did."

There was another silence.

"Well, it must feel different, this one being a combat mission. Not the same."

"Sweating like a pig."

"Yeah, really?" The voice brightened. "We'll get you back okay. Don't worry, fella."

"Say hello to the guys down there," Kenneth mumbled. He had felt he ought to say something friendly. Lewis wasn't a bad guy, just too chummy.

"We're all rooting for you. Zap that thing and Houston will sure be happy. If—"

"I'd better go over that flight plan."

"Oh, okay. Signing off."

"Roger."

COMBAT mission. Marines wading ashore. Somebody

always wondering where the medic is. *Your job, should you* decide to accept it . . . Crawl along a clay ditch, hornets passing overhead with a hollow buzz. Hug the ground, align with the groin of the world. Image of brown-skinned woman wrapped around white man, he in spattered uniform.

Somewhere a musical phrase of hunger.

He found one of the clear plastic tubes, squeezed it and ate. Carrot juice. NASA issue, life-giving vegetables and roots, no evil meat. Those who would meet God in the heavens shall be pure of intestine, live not from the flesh of dead animals. Rear your children on beans and berries—they, too, may ride to the stars. When they come home from a date, smell their breaths for the aberrant trace of a hot dog. Unclean, unclean. And anyway, nobody had yet learned how to grow a chicken or a cow on the moon, so soybeans it was.

For that matter, they couldn't do much else on the moon, either. It was all well and good to balance tomatoes with barley, coaxing forth from the lunar gravel enough protein and oxygen to support a small base—and yet another to regulate amino acids and plant sap, keep mildew from forming in the access pipes, conserve the thin mealy loam. The optimistic biologists frowned at their soybeans—with the daily cycle of sun and tides removed the beans grew gnarled roots and gray leaves, became miserly with their proteins. It was no simple trick to be an adversary of entropy in a land with black skies and winds that slept. But still, they carried on.

Optimism. That was what he lacked. Kenneth Walters shrugged with no one to see. The loss did not seem to matter.

He looked back, however, trying to remember when it had happened . . .

WHEN they pried him out of the shoe box that brought him home from Mars he spat and snarled, so that Parsons and the rest of the disappointed pallbearers kept him away from the 3D cameras for two weeks. Maybe it was a good idea. By that time the edge had left his tongue, the bile had been watered and some humor remained.

Parsons et al had sent him off a boy, able to lower his breathing rate and slow his metabolism at will by self-hypnosis. Operation Sure Thing gave them back a Kenneth Walters hardened and toughened, and they weren't sure what he would do with the fame that fell on him, a second Lind-

bergh. The other man had crossed the Atlantic at twenty-five—Kenneth was twenty-three. Parsons hoped he would prove docile. There was really no choice—so they slicked down his hair and sent him out to charm the Republic.

Kenneth made a few speeches, one before Congress. He went on 3D and flashed his teeth. He made jokes about having been so crowded on the flight home that he had had to comb his hair with his toes. When asked about the onboard computer's role in the mission he said something blandly nice about Roger (though he did get in a limerick about *Roger the lodger, the dirty old codger* . . . that NBC cut from their early show, but CBS left in). He spellbound his audiences with descriptions of the ruddy Martian lowlands. He slept with women.

Before Sure Thing he had somehow always met girls. After it, he met women. Or more to the point, they met him. They drifted his way at parties, seemingly inspecting the Cézanne prints, and abruptly came upon him, round doe eyes widening in polite surprise at his identity (yes, he was the one) and hand unconsciously going to the throat to caress a necklace or scarf, intimate sensual gesture to be read if he cared.

Often he cared. Often they were electric women, aware in some secret bastion that this man had been where they could not go, for reasons they did not fathom but which suggested something basic and feral, some mysterious male rite performed beyond the horn-rimmed clinical gaze of psychologists and pundits and, most important, away from women.

They were of many types. (*How masculine,* one of them said, patting yellow hair into place, *to think of women as types.* Embarrassed—for this was New York, where differences were unfashionable that year—he laughed and threw some chablis at the back of his throat and left her soon afterward, reasoning that, after all, he did not like her type.) But they had gained a sameness for him, though he sampled the Junoesque, the wiry, the darkly sensual, the Rubens maiden and some mongrels. How not to call them types just to tell them apart? The urge to classify washed always over him, to analyze and inspect—as he said to a catty aging 3D actress in a worldwide interview, "They were weighed and found wanton"—and at last he came to look upon himself as from a distance, pacing his responses, never moving wholly with the moment. There he quit. And went back to his job, which was, after all, enough. He needed

women, but he did not need the kind who were drawn to him.

BY THAT time 3D had made a minor personality of him. He began to accept exposure as it suited him, which happened to result in the optimum intervals for his remaining what a PR man had called "alive" without "saturating his image."

He appeared on a mildly intellectual talk show and revealed a more than passing knowledge of the works of Louis Armstrong. He was interviewed during a long walk in the Sierras, wearing a sweatsuit and talking about what he had learned from the NASA meditation course. It wasn't great material, but the networks were scrambling for something halfway intelligent. With 3D execs, anything that tickled their noses they thought was champagne. And the housewives and garage mechanics didn't get bored with Kenneth Walters either, because he laughed and told jokes and dropped sly little bits of inside scoop into the conversation about the infighting at NASA.

He was inordinately lucky. Something would boil up from his subconscious and he would put it into a sentence or two, and suddenly Parsons would be in trouble about his complicity in cutting the manned component at Hipparchus or stopping the infrared telescope abuilding in orbit or keeping women out of the program.

And in the sweet rushing fullness of time Parsons was no longer director of NASA. A news commentator said Kenneth had a positive talent for telling the right truth at the right time—right for Kenneth—and it was doubly surprising when the faculty for truth-telling left him, utterly, after Parsons resigned. A few of the men told him the moves had saved his career—that before he had gone on 3D he had been marked as a leading target for the next Night of the Long Knives. Houston—they murmured casually, looking into their branch-water-and-bourbon—hadn't been too happy about some of his transmissions from Mars orbit, bellyaching (their word) about coming home. Kenneth listened carefully to their admirations of his maneuvering skill, but he knew it was misplace. He had done in Parsons out of sheer personal dislike—no principle at all had been involved—and his subconscious knew it. As soon as the irritant had been removed, the sly Medici within him slipped into slumber and Kenneth returned to being a working astronaut. The

program sensed his potential power—once stung, twice paranoid—and more or less gave him the duty he wanted. When a spot opened in the thrice-yearly rotation at Hipparchus he applied for it and got it. He was short and kept up his breath control—he was precisely the man to use for long Rover missions in the highlands, working in a two-man team.

At last, on the moon, younger men were making their way in the program. The early test-pilot astronauts, thoroughly married and nearing their middle years, reeking of oatmeal virtues, couldn't make it at Hipparchus. They were fine for flights and quick exploratory landings, but they couldn't keep up the pace during the long marches and climbs. So, into an age leached of glory came the return of gallant young men, bleached hair cropped close to the skull, who kept the space program hobbling along with an occasional newsworthy exploit.

Toward the end of his rest after Sure Thing, the Mars flight, Kenneth had been interviewed on a late-night talk program. The gentleman philosopher who "hosted" the program—meaning it was his show—had mentioned that Kenneth had performed "one of the great acts of our civilization." Kenneth had told him no, that the great deeds always came in quiet, lonely rooms, where men and women worked for that most elusive of all things, a truly original idea.

Maybe, Kenneth thought to himself, watching Earth set behind a crumpled, gray-brown horizon, *maybe I was even right.* The host had murmured a precisely timed assent and shifted the subject—television does not fix on private experiences but public ones. Still, now Kenneth had come to it, too—waiting, alone, to drive home the blade. Or, failing that, a bludgeon. In solitude, very nearly as a private act. Private. But public.

THE first indication had come in the form of increased radio traffic with Houston. Kenneth was mercifully spared radio duty because of rank, so he first heard of the *Marauder* when the Hipparchus Base commander called him in for a preliminary briefing.

Three other men were there, alternate candidates for the mission, but Houston had made it clear that one Kenneth M. Walters was much preferred. Why? None of them could say, except that he did have more deep-space experience than the others. Too, he had reacted well during some foul-ups of Sure Thing and—perhaps more

significant—administrative changes at NASA had erased Houston's memories of his independence.

The four men at Hipparchus were told about the *Marauder* and Scenario Eight a week before Eight was to be executed. They heard, too, of the poor bastard who had decoyed the *Marauder* into a Venus orbit and had been fired as a result (a light sentence, Houston felt, but after all, he was a civilian).

One week was just barely enough time to arrange the modules for carrying extra fuel, checking out the systems and working out some alternate scheduling in case of mishap. It took everyone at the Base to assemble the launch vehicle and pilot's cabin in time. The nuclear-tipped rockets were already on their way from Earth orbit, carried aboard the supply shuttle.

Arranging the myriad valves and connections, checking out servo systems and interface parameters—each man carried a gallery of facts and numbers and details inside his head, worked doggedly to the limit of the pills and shots he was given and, in the span of five days, individually and collectively converted a blueprint into hardware.

TO PASS the time he read a novel from the cabin's erasable slate. With some forethought Kenneth had brought along a pack of four memorex crystals, each book length. In the first day of waiting he had devoured two of them. He privately gave even odds that Scenario Eight would not come off at all and reading relaxed him. It also provided a distraction. Even a view of the moon from twenty-seven miles up can pall after a while.

A phrase caught his eye:

. . . *at an attitude toward Attaturk* . . .

Later, as he was musing down at the flinty plain of Mare Smythii, it came back to him. He treated the words as he might an algebraic expression, factoring out all the *a*'s, then the *t*'s. Rearranged, the words could yield ambiguity, incoherence, passable poetry. He wondered if he had given in to a neurotic compulsion. Memory of case histories from library shelves came to him—women who never passed a lamppost without touching it, men who balanced always on the ball of the left foot while urinating, outfielders who had to take a skip before throwing the ball to home plate.

He shrugged and divided the phrase into thirds, quarters, eighths, thought of an anagram, fiddled with the punctuation.

The moon turned.

"THAT ignition time is holding okay." Lewis again, seven orbits later.

"What does Houston say?" Kenneth asked.

"*Marauder* is holding to course, decelerating at a fixed rate. Looks like its final orbit will be about a thousand miles out."

"What's it saying to Houston?"

"How would I know? They use some special code, sounds like to me. I listened in some and I couldn't spot any of the usual patterns, no Morse or anything like that."

"Morse isn't handy for computers. Too redundant or not redundant enough something."

"Well, they're keeping it busy. The Scenario calls for beaming a lot of hot stuff out to the *Marauder* just as it comes in and starts maneuvering. I guess they're answering the questions those computers wanted to know all along, only Houston wouldn't tell."

"I wonder what it thought, sitting over near Venus." Kenneth paused. "They couldn't be dumb, those machines. They must have figured out right away that Venus couldn't support any life."

"I wouldn't be so sure about that. It stayed put for five months."

"Maybe it was just being diplomatic."

Lewis chuckled, making a cackling hollow sound in Kenneth's helmet speakers. "That thing's a computer, Ken. And not even one designed by humans. It's just a searcher, that's all."

"If that's what it is—why is it hanging around? After it sent out that big directional radio signal toward Ursa Major it should have moved on to the next star."

"Well, that's why you're getting set to cripple it, Ken. To be sure it doesn't get any closer to Earth."

"And to give us a chance to pick its brains."

"Yeah, right. But remember, zap it if it looks like it's getting away. That's what Houston says."

"Sure." He waited, mistrusting a sudden impulse to exchange small talk with Lewis. Kenneth Walters, the media man, wanting to sound off. "What does Houston know?"

"Huh?" Thin thread of surprise in the voice.

"Houston thinks the *Marauder* is a recon operation. That doesn't have to be so. That guy Cains handed it a line about us living on Venus at the first, to keep it at arm's length. The *Marauder* probably transmitted some of that crap back to its home."

"So?"

"Now it's got to amend that report. It probably doesn't trust

Houston much any more—it wants a look for itself."

"Let it look from Venus."

"If somebody had told it we thought it was carrying alien diseases—or wanted to steal our wives and children—maybe the thing would stay away. Anybody try that?"

"Houston doesn't want to tip our hand and let that thing know we're afraid of it, Ken," Lewis said, sounding a little exasperated. "We want a shot at a sitting duck."

"A finger in the eye."

"What's that?"

"You ever think how old that thing must be? Our lives are so short that to the *Marauder* we must look like bacilli. Whole eras and dynasties snuffed out in an instant. It looks at us with its microscope and makes lab notes while we try to poke a finger in its eye."

"Hey, no wonder you were a hit on the late show. If this ever gets out to the public, you can use your lines in one of those magazine articles."

"I never wrote any."

"Not even about Mars?"

"No, I'm a media man. Aural-visual. Let your slides do the work."

"You're coming out of the radio shadow, Ken. I've already squirted your LogEx the corrections."

"Okay, see you on the next pass."

He was moving into the sun's white glare again. The cabin *popped* and *pinged* and *snicked* as it warmed. A plaster of Paris crater below lay bisected by the terminator, its central cone perfectly symmetric. Its rim was round and seemed smooth. Four distinct terraces marched down to the floor.

Snick, went his cabin.

Waiting at the edge of infinity, he thought. On the smooth shore of the ocean of night, marking the minutes until the winged stranger arrived. An actor, not knowing his lines, ready to go onstage for his big Scenario.

Maybe he should have been an actor, after all. He had tried it once, in college, before engineering and flight training had swallowed up his hours. He had wanted to be an actor, but his father had talked him into becoming a Kenneth Walters.

He warmed a tube of tea and sipped it, as well as anyone can sip from a squeeze bottle. The sun streamed in. Tea was a warm hand in the dark. *Reeling with Darjeeling*, he thought, *and maybe, after all, I did fool old Dad in the end.* Sure Thing had been a straight bit of acting, with Providence kindly providing a busy coda of danger after the landing. And here he was for his next engagement, carefully primed, all the props in place. Opening night coming up, all the Top Secret Clearance audience

clustered about TV sets. Best of all —no critics. *This actor, a well-grounded student of the Method School, is noted for his wholehearted interest in and devotion to his performance. His previous work, while controversial, has won him some notoriety. He prefers roles that seem to point a moral at the end, so the audience will believe they understood it all along. . .*

He smiled to himself. A man with his finger on the trigger can afford a few cosmic thoughts. Politics becomes geometry, philosophy is calculus. The universe winds about itself, snakelike, events plotted along coiled coordinates with a fine tight geometry, the scrap paper of a mad mathematician.

He raised an eyebrow at the idea. *I wonder what they put in this tea. . .*

VI

"WALTERS?"

They had called him several times, but he had been slow to answer.

"I'm busy."

"Got your systems repped and verified?" Lewis spoke quickly, slurring one word into another and making it hard to piece together the sentence. "We received that squirt from your onboard diagnostics on your last pass. Breakdown shows no serious trouble. A little overpressure on the backup tanks, but Houston says it is within tolerable operating limits. It looks like you're cleared."

Kenneth turned off the inboard reading lights before replying. The cockpit became bathed in the deep red of the running lights. For a moment he saw only blackness, then his eyes adjusted. He had seen this warm red glow thousands of times before, but now the sight seemed fresh and strange, portending events just beyond the point of articulation. *Dante,* he thought, *has been here before me.*

Well, he would give them what they wanted. He thumbed over to transmit.

"I verify, Hipparchus. Staging timetable is logged. LH_2/LOX reading four-oh-three-eight. Servitor inventory just completed and LogEx reports all subsystems and backups are functional."

"I have a relay for you."

"What?"

A buzz, a hiss of solar static, then a smooth, well modulated voice: "Ken, this is George Evers. I'm chairman of ExComm down here—we came up with Scenario Eight. I asked Hipparchus to patch me through to clear up any last-minute questions."

"I haven't got any. Just be sure *Marauder* doesn't put on any sud-

den burst of speed. Understand?"

"Quite right," Evers said gravely, his voice dropping an octave. "However, we are sure the *Marauder* will never see you. You will have the sun at your back all the way in on your run. There isn't any radar in the world that can pick you up against that background."

"In the world—*um*."

"Oh, I see. Well—" Evers gave a small, self-deprecating chuckle—" it's just a phrase. But our people here feel strongly that there are certain rules of thumb about detection equipment that hold true in every situation, even this one. I wouldn't worry about it." Pause. "But the reason I'm taking up your time, Ken—and I see we have only a few minutes left—is to impress upon you your obligations on this mission. We down here cannot predict what the *Marauder* will do. The final decisions are up to you, although we will be in contact as soon as we are sure that the *Marauder* has detected you—if it ever does, that is. To be sure, that might be long after the time for any effective action on your part is past. We will do all we can from this end, of course. For the last few hours we have been transmitting a wealth of cultural information on mathematics, science, art and so on. ExComm hopes this will serve as a diversion to the computers in the *Marauder*, though we have no way of knowing for certain. Meanwhile our satellites circling the moon will monitor radio transmissions to keep us in touch. Silence is essential. Do not broadcast on any band until the *Marauder* shows unmistakable signs of having seen you."

"I know all that."

"We just want you to have these things clear in your mind. There was no time for a proper briefing. You have two small missiles with chemical warheads. If they are not sufficient to cripple the *Marauder's* propulsion, then the nuclear—"

Kenneth Walters cut in: "I've got to check out something."

Evers' words ran on for a few seconds, until the time lag due to the finite speed of light caught up. It was obvious to Ken that he had interrupted a prepared speech. The beauty of his situation was that no one could tell from telemetry whether he had something to do or not.

He said, "Okay now."

Evers came back. "One last thing, Ken. This *Marauder* could be inconceivably dangerous to humanity. If anything seems to be going wrong, kill it. No, that's too strong. The thing is just a machine, Ken. Intelligent, yes, but it is not alive. Well, good luck, We're counting on you down here."

The sputter of static returned.

TIME trickled into the past, and he frowned, trying to make the memories fit.

His father had slipped away during Ken's college years, become a fading echo. The man had given his son a drab litany of success to live by—shoulders-to-the-wheel and all that—with a high nervous certainty that he, Kenneth, would fly where the father had merely walked. But he had coughed out his last spark before Sure Thing was born and had never known that his son had made it big, vindicated his withered life.

Poor father, he would have been awed by Parsons, by the multicolored telephones in the NASA offices and the legion of heel-clickers enslaved to them. Ah, and the fame that had followed Sure Thing—father would have rolled and basked in that, too, loving the delicious small warmths of celebrity.

The old man's solid, easy assurance had guided Kenneth, but when he looked back he found it hollow. So the faith of his father was empty.

Now he spun in night, suspended above choices made and abandoned, searching. Rather than fake a head cold and let one of the three eager backup pilots take Scenari Eight, he had thrust himself into the crucible of events again, seeking definition.

His beard itched. He resisted the urge to scratch it, knowing that would only make the itch worse, and allowed himself a mad grin, rolled his eyes, let forth a hollow groan, stretched his legs and arms.

He dabbed at his teeth with a soft wet tongue, tasting orange juice. He had been drinking it when Evers called. Some sliding waver in the way the man spoke, some thread of uncertainty had come into the cabin with that voice. Evers was NASA was Parsons was—

Kenneth did not complete the steps, fearing where they led.

He studied the distant vortex of white storm clouds over India and tried not to think. His fingers trembled.

Time. Time to see it all. He needed more. But time was gone, the green clock said; he went forward to meet the moment, to put himself on the anvil again.

"WE HAVE a burn."

He whispered it to himself through tight and bloodless lips. He was being pressed to geometric flatness by the magic hand of the multistage rocket and, though he breathed shallow short gasps and concentrated on timing them precisely, the pain would not stop shooting through the soft organs of his belly. He closed his eyes to find a red haze and imag-

ined himself a sunbather pinned to the hard sand, vaguely conscious of the distant rumble of the surf.

The Pacific. He had been stationed in California during aquanaut training, growing tan between hot dunes and clear water startling in its coldness. He remembered long and agonizing runs on the beach between La Jolla and Del Mar, recalled himself churning doggedly past forests of firm young thighs, sun shimmering through a thin haze of sweat that ran into his eyes. Cantilevered breasts—or more stylishly, bare ones, brown nipples pouting—had swung to follow his progress, deliciously red lips had spread to wide grins at his grunts and wheezes. Surf had foamed white to the side, ragged margin to blue-green ocean. As his arms and legs had grown leaden he had diverted himself with glimpses of the figures and faces passing by, moving stride by stride into his past. Small families, leathery men, serenely nude couples, dogs—all had acted out small plays in his head, populated his preconceived universe, frozen while snarled in tiny dramas of fear and aching lust, boredom and laughter, all parties taking all parts.

The pressing fist was lifted. He blinked, located a toggle switch, saw a light turn green. Separation. The fist returned.

Combat mission. Enemy. Target. He had not used those words for years—they were childhood terms. Galoshes. Skate key.

As the days stand up on end,
My friend . . .

His uncle had fought in some grimy jungle conflict, somewhere, had told stories about it, resolving all complicated political theory with the unanswerable gut reality of a souvenir pistol and bayonet, proudly displayed. Ken had thought it a minor eccentricity, like owning a complete fifty-year run of *The National Geographic.*

The fist lifted.

The fist returned.

A rivulet of spittle ran down his chin. He licked at it, unwilling to move a hand. His eyes ached. Each of his kidneys was a sullen lump just beneath the skin of his back.

Iron and oil,
Brought to a boil.

Abruptly he floated. The dull rumble died. He sucked in air, feeling life return to his numbed arms and legs. Automatically he scanned the regiments of lights before him.

He was flying blind, no radar to guide him. After a few minutes of checking he activated the fire-control center and received acknowledgments from the computers that rode in the missiles. Then he rotated his couch to get a full view out the large observation port.

Nothing. The port was black, vacant. He logged the time and checked the running printout on his slate. The burn was right, his heading was dead on. The *Marauder* was coming in for an orbit around the moon, as Houston had asked it to, and he would come up from behind, closing fast.

He glanced through the port again. Nothing. Now that he was on a definite mission, moving, the complete radio silence was eerie. Through the side port he could see the back of the moon fall away, an endless dirty gray plain of jumbled craters.

He searched the main port carefully, watching for relative motion against the scattered jewels of the fixed stars. He was studying the star field so intently that he nearly missed the bright point of light that drifted slowly into view.

HE SWUNG the viewing telescope down from its mount. Magnified, the diamond point resolved into a small pearl. The *Marauder* was a sphere, silvery, with no apparent markings.

He could see no means of propulsion. Perhaps they were on the other side of the object or not operating at the moment. It didn't matter—his missiles had both heat-seeking and radar guidance and could find the *Marauder's* fusion flame if it were on.

He squinted, trying to estimate the range. But he had no idea of how large the ship was, other than Houston's early estimate that it had to be less than three hundred yards in radius, based on data from the Venusian satellites.

He peered at it. The *Marauder* had come from some vast distance, sifting through scattered suns, searching for a matching glimmer of intelligence. For its journey to end so suddenly, here—if the missile hit wrong, burned away its fine-spun matrix of inorganic intelligence—would be awesome waste . . .

Kenneth broke off the thought. He fumbled with the buttons on the fire-control breadboard, rushing himself into something he did not want to think about too clearly.

He aligned, corrected and with an executioner's grace snapped the button home. From the left port came a bright orange flare and a blunt thump as death took wing. A spike of light spurted ahead. It

was a burning gaseous star, a sharp matchpoint of flame, then a shrinking dot that homed with bitter resolve.

Kenneth fidgeted. A shrill *beep* rattled in the cabin as automatic tracking followed the missile. Red numerals showing course adjustments flickered and died on the board before him.

The idiot *beep* quickened. The point of light swept smoothly toward the blurred outline before it.

Kenneth sucked in his breath, held it.

The sky splintered.

An eye-searing ball of flame billowed out. It thinned, paled. He pressed back into his couch, not moving, nostrils flared. The *beep* was gone and only a faint burr of radio static reached him. He hung suspended, waiting. He stared ahead.

Beyond the slowly dulling circle of flame a dab of light moved to the left. Its image wavered and then resolved into an intact, perfect sphere.

Kenneth realized that the chemical warhead had detonated prematurely. A wave of unexpected hope filled him. He blinked, trying to comprehend his own feelings.

The silvery ball drifted slowly leftward and he automatically corrected his course, feeling a tug of acceleration at his back. His mind tumbled, seeking something to hold.

Evers said to use the nuke, use the nuke use the nuke if the other missiles failed. Evers said . . . Evers said. . .

He corrected again, pursuing, feeling the tightening clutch of the straps. The pearl grew slightly, wobbled as he fired starboard jets and brought her on target again. He enjoyed the calming rhythm of work, of knowing what he was about. But the moment could not be put off. He punched in the final sequence of instructions and armed the one missile he had not expected to use. It rode directly above his head, waiting in the secure nest of its pod.

HE FOUND the button. He was thumb-fingered and moved slowly. The firing button for the nuclear-tipped missile sat alone in a small, bracketed section of the board. Kenneth could not take his eyes from it. He knew the radiation and shock waves from a nuclear warhead would probably kill the pearl. He knew it and he could not move.

A voice asked, "Do you know me so well?"

Kenneth froze. The voice came

from his helmet speakers, free of static.

"Who—" he began and stopped.

"Do you ride such comfortable winds that you can live counter to your best nature?"

"You're speaking? You—"

"I speak for my life."

"How do you know what I am doing?" Kenneth asked numbly.

"I have seen the dark side of your race. There are fewer walls than you may think. I have met this before—in different light."

The sphere ahead moved slightly to the right, out of his field of view. When he found it again through the telescope it seemed to have shrunk.

"I—I don't know what you—" he stammered.

"You are alone. I do not understand how you people can divide guilt, but out here I know it cannot be done. You are one man and you have no place to hide."

"If I—press this button—"

"You will make mean comfort for yourself. You are ready?"

"I hadn't thought that—that—"

"Your folk are often double."

"I didn't think you would be quite—"

He hesitated, his mind spinning soundlessly on fine threads over the abyss. The button beneath his finger became a stone, himself the sword, terrible in its weight.

A click, buzz, static. The voice passed from him.

"Walters, Walters. Evers here. Intersection should have occurred. We just got a fragment of some transmission—part of it sounded like you. What's happened?"

KENNETH WALTERS reached for the switch that would allow him to transmit and found it already on, warm meter glowing.

"I don't know," he said.

More static. Houston was probably using one of the lunar satellites to relay.

"Well, you had damn better find out. About a minute ago we picked up a signal of some sort from the surface, too. Parallax puts the source near Mare Marginis. We thought maybe the *Marauder* had altered course and landed there."

"No, it's right in front of me."

Kenneth peered out and found the pearl on black velvet. From the tail of it came a line of brightness, dimming the silver glow. It was clean and precise, carving order from the chaotic darkness that enveloped it. He felt his eyes become damp and he did not know why, though he felt a longing he had not known for many years. It

moved, captive of vastness, inexpressibly lonely.

"Walters! Report. Did the missile go off all right?"

"Yes."

A blur of sound. "—score? Did it score?"

"In a manner of speaking."

"What?"

"It detonated before it hit. No damage."

"And the backup? We haven't registered any jump in radiation levels."

With a gathering rush, softly, Kenneth Walters felt a weight lifted from him. A clarity came into his world. He knew at last where he was, the rank and order of things, sensed the welling rhythm of events. He perceived a straightness he had not seen before, a simple and direct channel within him that restored balance.

Without premonition, letting the words come out, he said, "You forced matters this way, didn't you, Evers?"

"What way? What are you talking about?"

"You forced death when you could have risked life," he said mildly.

Silence. Then: "Now, Ken, there is a job to be done out there. You don't have time—"

"No, I don't. Not for this conversation."

"Listen to me, Ken." A hint of urgency. "I've put all our bets on you—the game depends on your—"

Kenneth wondered at how smoothly Evers' voice slid from the ragged edge of anger to silky persuasiveness—which tone was natural to the man? Or was he nothing but false notes?

"Goodbye, coach."

"Walters? Walters? Report! What is the situation there? We—"

Ken thumbed away from that frequency.

THE moment of silence was filled only with his breathing. The crackling static had fallen away.

"It was not false, what I have learned," the voice said. "You, behind me, are one man who is not so hobbled and coiled."

"I wonder," Kenneth said.

"Your race has a stream of tongues. You communicate with many senses. These were hard for me. And I could not seem to find in the men who spoke to me the things that were in your books and art. It was as though there were two species. I did not understand that each man is so different."

"Of course."

"I have met other beings who were not," the voice said simply.

"How could that be? Did they

follow instinctive patterns—like insects?"

"No. They lived in a vast sea. Perhaps that explains some things. They were easier to fathom than your diversity. You are a tensed race, always moving in many directions at once. I have never seen such turbulence. I am afraid I cannot stay near such danger."

Kenneth felt a tug of disappointment, but he smiled. "It's easy to see why you can't understand us. The damned speak frantically."

"No."

"But we are damned. Compared to you we have little time."

"Eight hundred thousand of your years are still not enough. Your time is short and vivid, mine— I scream sometimes in this night."

"Good God." A pause. "I'd like to have those years, whatever you say. Mortality—"

"Is a spice. A valued one."

"I still would like the years."

"You are not damned."

"Damned lucky," Kenneth laughed, "but still damned."

"What was that sound?"

"Laughter."

"I see. Spice."

"Oh." He smiled, this time to himself. "Is your care so flat?"

After a long moment the voice said, "I see that it may be. Each of you laughs differently—I cannot recognize the pattern. Perhaps that is significant. Much hides from me—I was not made for this."

"But with all that time—"

"Yes. Those who made me could not see so surely what would come from their hands. I awake at each new star, as they designed. I perform my functions. But the sum is greater than the parts and—" the voice paused in the drifting silence—"there are dreams."

Kenneth nodded, waiting, but there was nothing more. "What are you going to tell your creators?" he asked at last.

"What happened." The voice deepened. "They decide."

"Oh."

"The rest is mine, the flavors. Your art and the set of your minds, only I am interested in those. They are for my times in darkness."

"I wish you well out there." The pearl was dwindling, drawing up unto itself.

"If I functioned as my designers intended I would not need your blessing. I would go through that night blindly. But I—the part who speaks to you—I am an accident."

"Maybe my race is, too."

"I do not know. Every race is unique. But friend—those other

men will exact much from you when I leave. Would that I could help."

Kenneth smiled, unafraid. "Well, it will be interesting. This was the first time we've been visited and now I've let the quail take to wing. They'll crucify me, lay me out cold. I'll never be out here again."

"Not the first—but no matter. You shall see. There were things written for you and left behind. Look to your moon. And perhaps—perhaps you should be left alone now. I sense that much has happened to you and that you need time."

"Maybe so. I'd still like to know where you're from."

"I do not know."

"Why?"

"I was assembled by another like me between the spiral arms and sent away."

"As lost as we."

"Yes. Eight hundred thousand years have made it no different, no easier."

"Well. Goodbye, then." The pearl was a diamond once more.

"I think not."

"Oh?"

"I am versed in many theologies. Some say you and I are not accidents and that we shall meet again in different light. You are membrane—I am not. There are things within I cannot see. Perhaps we are all mathematics—perhaps everything is—and there is only one whole solution."

Kenneth thought. "I believe I see something of what you mean." He shook his head. "It's hard."

"I must study that sound, laughter. There is your real theology, the thing men truly believe."

"Huh?"

"When you make that sound you seem to have a brief moment of what it is like to live as I do, beyond memory. Then you are immortal. Only for an instant."

Kenneth laughed.

They were rounding the back side of the moon, the *Marauder* dropping away, a blue-green Earth rising. Earth was all he had, he knew. Yet he dreaded it, swimming in brawling life.

The first part was going to be hell. They would court-martial him, hound him. This would be worse than the return from Mars, worse than he could possibly imagine. Evers would have his inning.

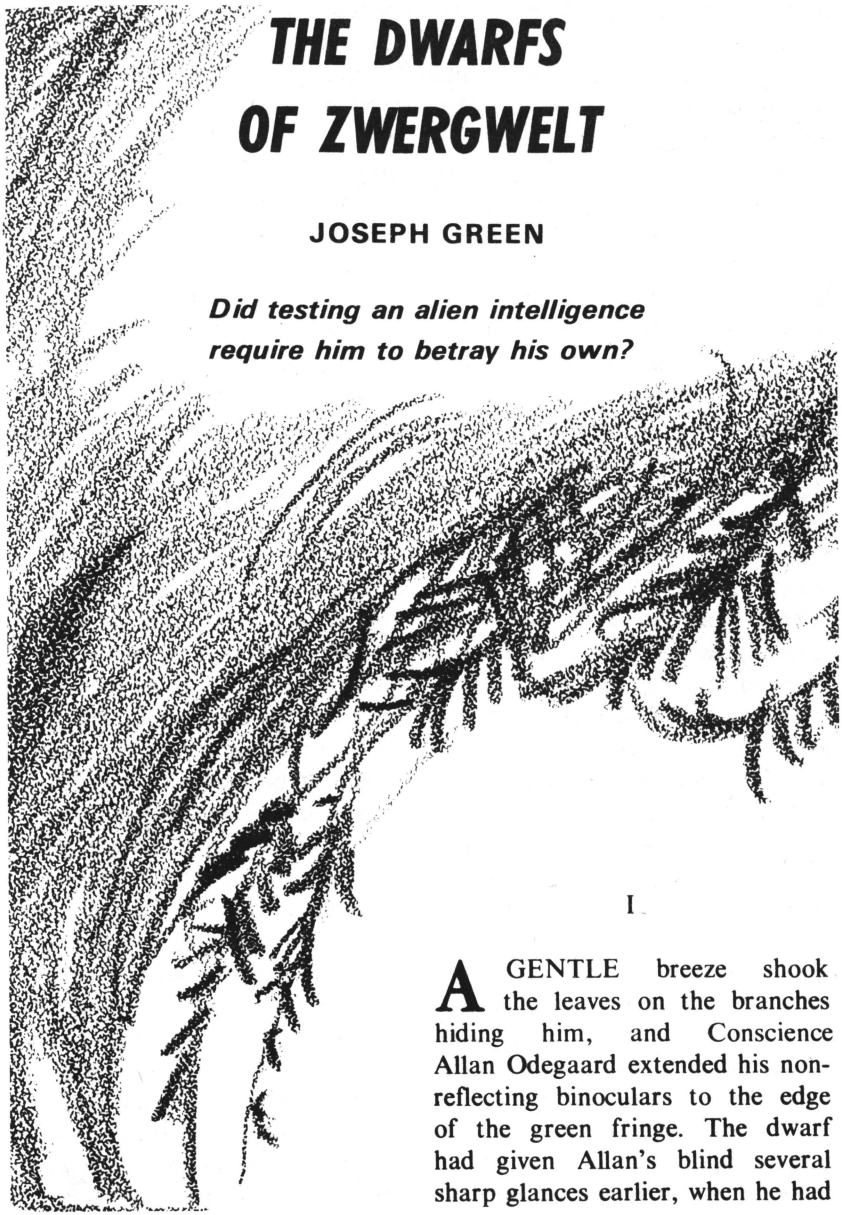
He wondered if he could explain this brief flicker of time. He shrugged, eyes stinging.

It happened to me then, my friend
And here we go
Once more
Again. ●

THE DWARFS OF ZWERGWELT

JOSEPH GREEN

Did testing an alien intelligence require him to betray his own?



I

A GENTLE breeze shook the leaves on the branches hiding him, and Conscience Allan Odegaard extended his non-reflecting binoculars to the edge of the green fringe. The dwarf had given Allan's blind several sharp glances earlier, when he had

inadvertently moved the greenery. At the moment it sat in its high nest, idly searching one lightly furred thigh for parasites. Allan saw that those it caught were discarded rather than eaten. He looked down to make a note. When he again raised the glasses the dwarf was on its feet and stretching lazily. This male was approximately one hundred twenty centimeters tall and had characteristically broad shoulders and heavy musculature. In one G it would weigh in at over fifty kilograms and Zwergwelt was a 1.08-G world. Except for the height, its resemblance to a hairy naked man was startling.

The dwarf stepped out of its carefully woven vine basket and dropped to a lower limb. Moving with the easy grace of an animal at home in the arboreal pathways, it ambled to an intersecting branch and shifted to the next tree, a nut-bearer. On a planet without seasons a few seeds were always ripe. The short hominid picked two large nuts as it walked toward the trunk. Just as the leaves started to hide the dwarf Allan saw it pause, heft one of the nuts and suddenly let fly. A thin scream overrode the soft ripping sound of a body falling through the vegetation.

The hunter disappeared into the thicker lower growth, hurrying to reach his prey before another hungry predator found it on the ground. Allan settled back and wrote on his pad that an adult male dwarf had obtained a meal of nuts and meat within two minutes after starting its evening hunt.

Such proficiency should have indicated intelligence of a relatively high order. But the ease with which the sturdy hominid had obtained its meal had at least as much to do with a bountiful environment as with intellect. The slain animal was almost certainly one of the large rodents who lived primarily off the nuts of that particular type of tree. The dwarfs could eat almost any seed, tuber or fruit in the woods, as well as meat.

Once again, nothing had been proved. Allan stared at his notebook, knowing from long experience that his three days' worth of data would be inconclusive when statistically analyzed. The dwarfs had an extremely large repertory of situational responses, but so far he had not recorded any actions unambiguously proving intelligence.

Allan gathered his gear, slipped on his backpack and descended slowly and cautiously to the ground. He had barely time to reach the field station before dark. He set a brisk pace through the

moderate undergrowth, glad of the chance to stretch cramped legs.

ONE of the several rocky hills in the area was on his left. Its limestone cliffside paralleled his path. Trees grew so close to the vertical wall that several branches touched it and a solid curtain of leafy vines all but hid the stone. Allan had passed this way earlier, but at a distance. From this close something about the rock face suddenly seemed odd to him, subtly wrong. He paused, staring at the thickest cover near the center. After a moment he identified the oddity—the coloring was off.

He took a step toward the vines and froze when a savage scream sounded almost in his ear. A second later a heavy body landed on his back, knocking him to the ground. Short but powerful arms locked around his chest and a hard head burrowed beneath his jaw, sharp canines seeking the jugular.

He exerted all his strength and pulled down his chin, at the same time rolling over and trying to pin his attacker. His left arm was free and he brought the hand around to push desperately against a thick jawbone, aware without pain that the slashing teeth had already cut into his neck. He heard several sharp clicks as his opponent tried to bite his fingers and abruptly the creature rolled Allan in turn, swinging its head free. Allan continued the roll and they ended lying face to face on their sides. He brought up a knee, planted it in a firm belly and shoved with all his strength. The dwarf lost its grip around his shoulders, slid away and Allan finally had the use of his right arm. Almost instantly the short hominid bounced to its feet and launched itself in a dive at his throat, now exposed again. He doubled both legs and kicked. The dwarf went flying against the vine-covered cliff. Allan's laser cleared the holster just as the dwarf, which had regained its footing, ended the combat by darting behind a bush. The creature was visible again an instant later, but Allan held his fire. There was a final scream of animal rage and the dwarf was gone.

Badly shaken, Allan got to his feet and brushed himself off. He was bleeding profusely from several lacerations of the neck, but none seemed deep. He opened his pack for the medical kit and applied an antiseptic coagulant. When the bleeding stopped he covered the torn areas with plastiskin bandages. His clothes were soaked with blood, but he could do nothing about them.

He had recognized his attacker —it was the female who claimed this territory. Whether she had wanted him for dinner or had simply been defending her land was a moot question. The dwarfs lived alone except for temporary alliances for mating and the females were fully as vicious as the slightly larger males. That he had been attacked was his own fault—a short detour would have kept him out of her way.

Strange, he thought—he would never have knowingly walked into the territory of a female leopard at the time of the evening hunt, but had moved into the dwarf's area without conscious thought. Because she was a hominid and he had the deeply ingrained male chauvinism common to his kind?

The dwarfs did not have a leopard's deadly claws, but their dentition included four long cutting fangs. And in addition to throwing nuts and branches, one male Allan had seen had used a knobbed stick as a club. Neither activity justified a claim of intelligence, but did make the creatures fearsome opponents. Although the forest abounded in herbivores three times their size, the omnivorous dwarfs were the only large meat-eaters. Allan's carelessness had nearly cost him his life.

He walked to the vines against which he had kicked the female and where he had noted the discoloration. He had heard no sound of solid impact when the female had struck the wall and he saw why—there was a cave behind the thick cover. The dark opening also explained the subtle change in color.

His pack held a powerlight. He took it out and, laser pistol ready, edged through the vines. In five meters both floor and ceiling started rising. Then the narrow tunnel widened into a small underground grotto. Allan moved the light around. He was standing in a circular cavern about twelve meters in diameter, with a low concave roof. The room was empty except for a single figure seated on a natural stone bench protruding from the rear wall.

ALLAN focused his torch on the lone inhabitant. It was a statue, apparently made of clay and almost human in appearance. The workmanship was crude, but the sculpture had clearly defined features, a normal head and four limbs. The scale was slightly larger than human. No attempt had been made to indicate hair. The ears were outsized and lips were huge and ugly, extending like two halves of a saucer broken across the middle and lying on top of each other,

the round sides protruding. This was not a dwarf cast twice life size, nor was it a man.

Allan moved closer and touched the statue, then turned his light and swept it across the chamber floor. The stone was covered with a fine layer of powdered lime—only his own footsteps showed. He had an almost certain feeling this room had not been entered for decades, perhaps centuries. And yet the oddly made crude figure seated on its soft stone bench was composed of simple clay and was not even fire-cured. It should have crumbled to pieces from loss of moisture within a few days of its making.

Allan shook his head in bafflement, then conceded the mystery was beyond his immediate understanding and turned away. He had to get back to the station. Outside again, he pulled the vines back in place. The grotto was as well hidden as before.

Dusk was falling, but he could still easily follow the herbivore game trail that led toward the station. He walked the remaining three kilometers lost in thought—on this trail he was safe from attack. Who had made the statue? Crude art might be within the physical skills of the dwarfs, but they were not sufficiently advanced in culture or intelligence to have need for a god. And what kept the fragile clay together?

The last yellow rays of Pollux had faded when Allan emerged at the base of a low hill crowned by the foamfab dome of the station, a temporary structure. Halfway up the hill he used a key to let himself through a gate in the charged protective fence that encircled the building. Trees that approached the fence had been cut down, eliminating aerial access to the enclosure, but new green bushes were growing where the original brush had been burned away.

At the door Allan was met by Victoria Gant, the chief of the station's nonscientific personnel. She was a short, dumpy brunette, slightly older than Allan's forty-eight Eryears and fanatically devoted to her job. She saw the bandages on his neck, asked what had happened and insisted on treating the wounds again when Allan admitted to having been bitten.

He sighed and submitted. He removed his upper garments and Victoria opened each laceration, poured on foaming antiseptic and let fresh blood and liquid run out. It hurt when she carefully tucked the torn edges of flesh back together, but Allan gritted his teeth and endured. She opened a new

tube and carefully covered each wound with a white gel he recognized as a coagulant and flesh sealant, then she rebandaged the wounds after the bleeding stopped.

"We're late for dinner—hurry into some clean clothes," Victoria said when Allan rose.

She started cleaning up the small mess her ministrations had made on the floor.

THIRTY minutes later Allan had bathed and changed. Two other dinner guests had just arrived—the director of the Zwergwelt stations, Dr. Boris Magnitsky, and his aircar pilot. The elderly scientist spent most of his time at Main Base in the central highlands, but visited the three outlying field stations regularly. The four buildings were the only human habitations on the planet. The dwarfs had been declared intelligent and the planet had been proscribed except for rigidly controlled scientific work.

"Did you finish today, Conscience?" the director asked, after picking delicately at his food. His voice was deep and pleasant, but had a slight quaver of age. A faintly sardonic smile touched his wrinkled face. "I'll be returning to Main tomorrow if you need a ride."

Allan decided to meet the challenge head-on. "Doctor Magnitsky, I haven't uncovered one fact that invalidates the observations your people have made of the natives' intelligence," he said slowly. "Still, I'm not willing to reverse a prior decision without an intensive investigation of my own. I'm going to stay here a few more days."

"Then you'll have to catch the regular supply run next week. We can't spare the aircar for a special trip," said the director, rising. He was a tall man stooped with age, the first scientist past his hundredth birthday Allan had seen at an out-planet location. Magnitsky was also a giant in modern biology and when he had reported that the Zwergwelt dwarfs were not intelligent, as ruled by a Conscience some six Eryears before, Sector Chief Odegaard had been dispatched immediately to check on the claim. Politicians were always trying to influence the decision of a Conscience, but Magnitsky's scientific credentials were impeccable. There were also several psychologists on his staff.

The problem on Pollux Five had arisen at a bad time. World Council elections would be held on Earth within sixty days and if the New Roman opposition could prove that a highly compatible world like Zwergwelt had been withheld

from colonization by error, the embarrassment could cost the Conservationist Party the election. The Corps of Practical Philosophers had been launched with tremendous fanfare some thirteen Eryears ago to identify and save from exploitation worlds containing intelligent species. It had been proved on Earth that when unequal cultures met, the higher inevitably eroded and eventually destroyed the lower. Guns, antibiotics and power tools were far more easily absorbed than mechanized agriculture, birth control and a nine-to-three job. The resulting strains on the delicate fabric of social organization always pulled a less developed culture apart.

After interstellar travel became commonplace in the twenty-first century the Conservationist Party decided not to export Earth's previous mistakes. Thousands of worlds in the Hyades group, containing Earth and the neighboring clusters of Ursa Major and Scorpio-Centaurus, had already been explored. No sign had been found of another space-traveling species, but millions of new life forms had been discovered, many of them in the early stages of intelligence. Save for being subject to scientific research, worlds containing such species were to remain untouched.

The initial glow of virtue faded rapidly as the Practical Philosophers—or "Consciences of Mankind" as they were soon dubbed—did their jobs. The same factors that had led to the development of intelligence on Earth dominated similar worlds, with the result that planet after planet suitable for colonization was ruled ineligible. Now even the Conservationists found the P.P. Corps a hindrance. But the party and its most glamorous agency had become firmly welded in the public mind and must stand or fall together. Allan had been informed by Siggi Wilson, P.P. Corps administrator, that it was vitally important that the original decision regarding the dwarfs' intelligence be proved correct. Unfortunately, to date he had no proof that would enable him so to rule.

II

THE five men and three women finished their meal and started drifting into the common room for the night's entertainment. The director had brought some new Tri-D tapes.

"Going to watch the Olympics with us, Conscience?" asked Margarete Olmedo, a pretty, olive-skinned girl who had been more

than casually friendly toward Allan during his short stay.

He was tempted. He had put in a long day crouching in his blind and whether or not he liked sports was immaterial—the tapes showed Earth. But he also needed to start extracting the figures that were going to build to an inconclusive statistic, and tomorrow he wanted to get an early start and construct an observation post near the female dwarf that had attacked him. She had launched herself from an overhead branch when he had made a move toward the hidden cave and it was not simply a coincidence that when he had hurled her away from him she had landed against the opening. Regretfully he declined.

In the small cubicle that had been assigned to him Allan sat on the foamfab bunk and patiently assembled his data into class orders. He ran a preliminary analysis in all classes for central value and compared the result with the established intelligence scales used by all P.P.'s. As he had expected, the dwarfs were a borderline case with a slight bias on the lower side. Apparently the previous Conscience had been influenced by the creatures' biological classification as hominids and their demonstrated competence. Allan could not believe his predecessor had seen the hidden grotto and its god figure—the air of untouched antiquity had been too strong.

Borderline was not good enough —according to P.P. guidelines intelligence had to be positively demonstrated. Allan sighed and ran a comparison check between his own data and the refined statistics gathered by station personnel and correlated by Magnitsky. The two were almost identical when obtained under similar conditions. Unless the more detailed studies were faked, which seemed highly improbable, Magnitsky's case was practically proven.

The idea of delaying a decision until after the next election occured to Allan, but he discarded it immediately. The commitment of mankind to the avoiding of old errors had to be considered a lasting one, not subject to changing conditions, to mean anything at all.

Zwergwelt had a nineteen-hour day and he worked through half the short night before tumbling into bed. He slept dreamlessly until called for breakfast.

He lingered over a second cup of stimcaf with Magnitsky, who was preparing to leave. The aged scientist seemed to have something on his mind. Finally he pulled a flimsy from a pocket and said, "I received an interesting rumor

on the daily activity report from Main Base this morning, Allan. The word is out that you're scheduled to leave for Earth and become Siggi Wilson's deputy administrator. Also that you just might break a short tradition and replace Wilson when he retires next year."

Magnitsky chuckled. Allan realized his face must have shown his surprise. The present deputy administrator was leaving and Allan had been offered the job, but the thought that he might be groomed to replace Wilson was new. In its short life the Corps had had three administrators, all of them retired space service general officers. Since the Corps was a semi-military agency and all accredited agents held reserve rank in the space service, the short tradition had seemed likely to become a long one.

What Magnitsky could not know was that Allan planned to decline the promotion. He has signed up for the P.P. Corps at its inception. In his sixteen years in the field, eleven as a Conscience and the last five as one of three sector chiefs, he had found a life more rewarding than anything crowded Earth had to offer. He liked spending three-quarters of his time in spaceships. And while gathering data on a subject species was often dull and tedious it also offered unique adventures, high moments of excitement and danger, the thrill of discovery, that no desk-bound job could possibly match.

The two men shook hands and Allan slipped on his backpack. At the door he was stopped by Victoria Gant, who asked where he would be if they should need to reach him.

"I'd rather not take a chance on your disturbing the subject under observation—except for an emergency," he told her.

"Understood. But there may be one."

Allan showed her the low cliff on his terrain map. An hour later he was sitting on top of it, hidden behind some bushes near the edge. The tallest trees reached well above the limestone outcropping and he patiently scanned their upper levels with binoculars. He located the female dwarf in ten minutes. She had built her nest in the second tree away from the edge, slightly below the cliff top.

The thick brush at the cliff's edge provided an adequate shield. Allan settled down to observation. This female had no children and, like the males, spent most of the morning napping and occasionally eating fruit. At noon she left and made a circuit of what was obviously her territory, but re-

turned for another nap. Allan began to wonder where the dwarfs got their muscular power—like male lions in the wild, they received hardly enough exercise to stay alive.

BY THE time Pollux sank slowly toward the green horizon Allan was entertaining the hope that Victoria would send someone after him. It would stir the female into activity—she might exhibit protective behavior if strangers approached the cave. But nothing had happened when it came time for him to leave. Allan donned his pack and crept backward until he could rise and walk down the gentle slope to the north.

He reached the game trail that led toward the station and started along it, mulling over the obviously high but unrealized potential of the dwarfs. For some reason he felt listless and tired, as though drugged by fatigue. He could think of no reason for his weariness—he had spent most of the day lying on the ground in reasonable comfort—but the feeling persisted and grew stronger as he walked.

Some instinct developed by a thousand brushes with death on primitive worlds alerted him to danger. He looked around carefully and saw nothing unusual, but the uneasy feeling persisted. There was an abrupt bend just ahead in the trail and without conscious intent his hand drifted to the laser in his belt as he started around it.

And then he saw the waiting human female. She wore a black hood with a front panel that hid her face.

"Just stand there," a voice said almost beside him and Allan turned to see a pistol barrel covering him from the shadowed bush. There was a crackling of brush from the opposite side and a second armed and black-hooded figure emerged.

"Who are you? What do you want with me?" Allan demanded.

"You will know shortly," said the female who had waited in the trail and Allan could not repress his startled surprise. The voice was muffled by the hood, but he was almost certain it belonged to Victoria Gant.

She turned and started back down the trail and one of the two men removed Allan's laser and gestured for him to follow. He experienced a slight dizzy spell, but recovered and walked after her.

The masked woman led the way toward the station at a brisk walk, but turned into an intersecting trail after less than a kilometer. Allan had to force himself to meet her pace. Two hundred meters down

the new trail she turned into the brush. Allan followed for a short distance, the two guards at his elbows, and emerged into a grassy clearing bordered on one side by a small swift river. Three other masked figures, one of them a woman, were sitting on the grass a few meters from the bank.

When he stopped walking Allan's legs almost betrayed him. He sat down and rested a moment, then looked up at the woman and said, "This is an odd game—and I don't really want to play."

"It is not a game and your participation is mandatory," the woman replied, her voice cold. "This is a Safeguard Squad, Conscience Odegaard."

Allan felt a small thrill of horror. He had heard the vaguest, most fleeting rumors about a secret society recently active on the outlying worlds and the word "Safeguard" had been whispered. He had not believed the rumors or put credence in hints that the recent deaths of two Consciences had been something more than the accidents they appeared to be. The thought that some of the people he knew and worked with could don masks and become killers was insupportable. The horror he felt now was not for his own safety—it came from the realization that the unacceptable was true.

"I have heard of you, but only vaguely," he said aloud. "Tell me more."

"In good time, Conscience. At the moment we have more urgent business. Please sign this."

She extended a single page. Allan took and read it in the gathering twilight. It was the usual preliminary report filed over the subradio when a Conscience reached a decision—it imitated his writing style reasonably well. It stated that the dwarfs of Zwergwelt were definitely below the minimum intelligence level and that the decision of the previous Conscience was reversed. Zwergwelt was to be opened to full colonization. Allan's name and rank of sector chief had been typed in.

"I may very well file a similar report when I'm satisfied it's the truth, but not before—and I'll never sign under duress," he said, handing it back.

"You will sign—and promptly," said the voice he now was certain was Victoria's. "I have a hypnotic and its antidote in this medical case. If I must I will drug you, order you to sign and then administer the antidote. But in your present weakened condition the double drug dose might be fatal. I advise you to sign."

"Why are you trying to force

me when this is probably the decision I'm going to reach anyway?" he asked.

"Even if you were willing to overrule your mistaken predecessor, which we doubt, you made it perfectly clear in talking to Magnitsky that you intend to delay a decision until it's too late to affect the coming elections. We can't wait. This will be just what the New Romans need to throw the idiot Conservationists out of power at long last. Now sign—or take your chances with the drugs."

She again extended the paper to Allan. He shrugged, accepted it and signed. As he handed it back Allan said, "I don't understand the rules of the game. What's to prevent me from repudiating this the moment I reach a subradio?"

"If you are found innocent of Crimes Against Mankind in the trial you are about to undergo you will be kept isolated in a nearby cave until after the election," said the woman, her voice even and very formal. "If found guilty as charged—you will be executed."

THE horror came back, prickling at the skin of Allan's forehead. He had been seconds away from death on many occasions and had been frightened every time. But now it was not fear that sent cold chills down his back—it was the knowledge that he was dealing with self-appointed executioners. These people were willing to sit in judgment of him for what they alone considered crimes. He had thought such barbarism gone from human society—today it was a recognized form of insanity.

Victoria slipped the report into her jacket. In measured tones she said, "Conscience Odegaard, you are charged with Crimes Against Mankind—specifically, with forbidding the colonization of dozens of worlds perfectly suited for human growth and expansion. You may speak in your own defense and I shall appoint a counselor for you. I suggest you take time to consult with him before the trial begins. I warn you fairly. If you are convicted by this jury—" she swept a hand toward the woman and two men who had been waiting for them—"you will be summarily executed. This is not a game, as you referred to it earlier—for you the situation could hardly be more serious."

Allan raised a hand. "A moment ago you referred to my 'weakened condition.' How did you know I was not feeling well?"

A short laugh came from behind the black mask. "The salve Vic-

toria Gant used on your wounds yesterday contained a new drug, discovered here on Zwergwelt. It acts slowly and weakens without killing. We had already planned to take you prisoner today and the drug lowered your ability to resist."

Allan was so physically weak it was an effort to hold his head erect. His mind was clear, though, and he caught the illogic at once. "Then you had intended to force me to sign that false report even before you heard the conversation with Magnitsky. Right, Victoria?"

There was a short silence. Then she said, "Your guess as to my identity is not important—think just what you wish. And yes, we had planned to take this action even before we overheard the conversation that gave away your intentions. But enough talk. The jury and I will withdraw. The man on your right is the prosecutor. I appoint the one on the left as your counsel. The trial begins in ten minutes and I repeat—if found guilty you die. Prosecutor, you may move out of hearing distance. I think he is now too weak to run."

The man on Allan's right followed Victoria and the two stood talking in low tones a few meters away. The other one turned to Allan and said, "Conscience, this trial is real, not just an excuse to execute you. If we win you'll be kept on the drug for a couple of months and released after the elections, just as the judge said. What you do then won't matter because our friends will be in power. Now, the best way to beat this charge is to show what you've done for Mankind to counteract the bad. I've read the folder on you and it shows many cases in which you ruled 'questionable' species unintelligent, opening up several worlds to colonization. We'll throw those at the jury."

"Are you saying I can't defend the work of the P.P. Corps *in toto*?" asked Allan.

"Certainly not. That's a sure way to lose. The Corps as a whole has done more to hold Man back from his rightful place in the galaxy than any organization in history. Some muddle-brained Consciences and their bleeding-heart supporters have ruled us away from worlds that could be colonized tomorrow. And why? Because some dumb animal just *might* develop intelligence a million years from now! That's what the Safeguard Squads have been organized to fight, Conscience. You know as well as I do that we need those worlds. But look, let's save it for the jury. Will you do this my way?"

"For the moment," Allan agreed.

His body felt as if it had been ravaged by a long illness, but he still thought clearly. Evidently the drug did not effect the nervous system. And his defender, probably one of the station personnel, sounded sincere. Night would fall in a few minutes. Allan had already decided to play for time—if he could overcome his debilitating weakness he might find a chance to escape.

THE defense counsel called to the judge and prosecutor. Allan struggled to his feet and walked slowly toward the jury near the riverbank. His appointed attorney followed and the other two moved to intercept him, but slowed when they saw he was making no effort to escape. Allan stopped in front of the woman and her two male companions. He noted that he was now less than fifteen meters from the water.

"The court is now in session," Victoria said. "Is the prosecution ready? And the defense?"

The two men mumbled an assent—apparently neither was accustomed to his role. Allan had been studying the three jurors in the fading light and was convinced the second woman was pretty Margarete Olmedo. The two women at the local station who had been kindest to him were co-conspirators. He was equally certain he had not met the two male jurors. Something in the way they moved—they displayed the easy but sure physical reactions of men accustomed to changing gravities—said space service. Allan had a sudden grim hunch that one of those two would play a second role if the verdict were guilty—that of executioner. And if he enjoyed such tasks, which seemed likely, there was little chance he would vote for acquittal.

The prosecutor began his presentation and Allan listened carefully. The first words might have been lifted directly from a hot speech by a New Roman politician—they created a familiar blend of fact, prejudice and distortion. The diatribe was directed not as much against Allan as against the Conservationists in general and the P.P. Corps in particular. The charge that the Corps had denied human access to hundreds of worlds was accurate. It was also true that no species had been found with a civilization comparable to Earth's. Man was apparently alone in the galaxy and it was ridiculous and wasteful to refrain from relieving Earth's burdensome population when the means of transport and the empty worlds were available. The Con-

servationists had taken advantage of mistaken idealism—and the gullibility of billions of voters to maintain their hold on power—at a cost to the future development of Man that was incalculable. Since they had succeeded in duping a majority of the voting public until now, a group dedicated to operating in secret for the benefit of Mankind had been organized. It supported the New Roman party but was not a part of it. The Safeguard Squads were its enforcement arms and had the vested power to bring known criminals to trial and execute sentence upon them.

The last few items were not part of the New Roman dogma, but Allan felt certain higher-up party officials must be aware of the existence of the Safeguard Squads. It was hard to operate in space without the active connivance of some members of the space service hierarchy. Allan felt a sudden numbness of spirit when he remembered encountering, the year before, a brigadier general who had tried to have him killed. At the time he had thought the incident an isolated one, the work of a frustrated officer nearing retirement who was willing to swap his honor for high political office. Now he was not so certain. The general had been forced out of the service, but had been immediately appointed to a functionary's post in government. The New Romans were either actively supporting this extralegal society or passively condoning it.

Darkness had fallen. The judge produced a light and placed it on the grass, focused on Allan. Behind the glare Victoria Gant became a dim and lumpy figure, squatting on crossed legs. Only the prosecutor and defense counsel stood.

"Your honor, I have a question of legality," Allan said when the prosecutor finished. "Am I to understand that the only possible punishment in the event of a guilty verdict is death? Why are there no lesser sentences? And if someone is found innocent, what keeps him from reporting you to the officials?"

After a short wait Victoria answered and it was obvious she was speaking carefully. "There have been only two trials to date and both accused were found guilty. If found innocent they would have been placed on one of the habitable worlds their own people caused to be isolated. As for the death sentence's being the sole penalty for guilt, I would like to remind you that killing a Conscience is the one crime for which the space service is authorized to hold a field trial and execute upon

conviction. It seems only fair that you be subject to the same penalty."

"Thank you for the enlightening comparison, your honor."

"The jury will note the defendant's remarks. Defense counsel?"

Allan's counsel said, "I'm happy to be able to defend Conscience Odegaard—he is certainly one of the better members of his club. I can name at least a dozen worlds where he made the decision that a questionable species was unintelligent, opening the way to colonization. A recent one was Beauty, where he overruled one of his fellows and declared the planet okay after the stupid idiot had ordered the colonists off. He forced one of our friends in the space service to retire on that deal, but at least we got the planet. On Misery—not one of the better planets for sure—he gave permission for the local spice processing company not only to continue its work but to expand. The company is supposed to leave later, when the humanoids there develop a little further. Even on many worlds that he ruled ineligible for colonization, like the silicon-life planet Crystal, he okayed the installation or expansion of scientific stations. I maintain that his record as a Conscience is unusually good and that he should be spared and freed after the election."

"The defense counsel makes some good points," said the prosecutor without waiting for judicial permission to speak. "Odegaard is admittedly one of the less soft-headed members of his profession. But I deny that his record is really that great—he has followed the standard line in ruling humans off any world where the local animals could so much as throw stones. If he is less guilty than most, it's strictly a matter of degree. I say we have no choice but to find this man guilty as charged."

The defense counsel took a step forward and began a rebuttal. Both men had become wrapped up in their role-playing and were working hard—each seemed equally sincere. For the first time since the start of this wild trial Allan could almost believe that it was real.

The two court opponents argued for almost an hour. Zwergwelt had no moon and a light mist in the air hid the stars. Allan had been squinting away from the light for some time to accustom his eyes to darkness. He felt he had rested enough to be capable of at least a short spurt of explosive action.

"The jury will vote immediately, since we judge by majority decision and consultation is not permitted," said the judge, picking up the light and swinging it toward the three

seated figures. "All who vote 'guilty' please raise your right hand."

One hand, that of the man on the left, shot up immediately. Allan guessed that he was staring at his intended executioner. The other man made no move. Margarete hesitated, started to raise a hand and then nervously lowered it. Her agitation was apparent even through the shielding hood. The judge waited a moment. Allan thought he heard relief in her voice when she finally said, "Vote noted. All innocent, same sign."

The man on the right raised his hand and the woman followed suit. The one on the left muttered something under his breath.

"The verdict is innocent," said Victoria, her voice neutral again. She swung the light back to Allan. "Conscience Odegaard, you will be held in custody for sixty days and then released, provided we win the election. I am sorry we must detain you . . ." she went into a lengthy apology, but Allan was no longer listening.

HE dove for the light, snatched it up, rolled to his feet and hurled it at the left-hand juror. It caught the man in the face, knocking him down, then spun into some low growth. In the sudden darkness Allan stiff-armed Victoria, sending her sprawling, and ran for the water, crouching and zigzagging.

A laser beam, aimed low, flashed past his legs. Allan threw himself at the ground, hit rolling, scrambled to his feet and hurled himself forward in a long flat dive. In midair he felt a surge of weakness so overwhelming he almost blacked out. The sudden tremendous exertion against the deadening effect of the drug had brought him to the edge of physical collapse.

The third laser beam burned him across the left thigh as his head hit water.

He felt the shock of the wound even through the faintness. The water was unexpectedly cold and jarred him back to full consciousness. Momentum carried him into the strong central current and he felt it pulling him down. He vented his breath slowly and managed a feeble stroke or two to keep himself under. Even that small effort brought blackness washing back over his mind. He hovered on the verge of awareness for a long moment, and then felt air on his face—his still inflated lungs had brought him back to the surface. He emptied them and sucked in air in a great gasp. Light swept over his head, came back and a laser beam burned the air a few centimeters in front of his eyes.

The water beyond exploded into a cloud of steam.

He managed a feeble stroke that took him down, but again lost his hold on consciousness. For a timeless interval he hovered in the grip of shadows, eyes closed, moving as the current took him, and again broached the surface. The light found him immediately, but from farther away. When the laser beam came it boiled the water where he had just ducked—he felt the heat before the current dragged him away.

When he came up for the third time he was past the point where the light was effective. The accumulated need for air was so great he had to take several deep breaths. The mist had lifted and bright starlight revealed that the fast water had taken him around a bend.

The sound of someone crashing heavily through the brush reached Allan from the near bank and he managed a few strokes to push himself farther out. He had submerged by the time the light swept the surface again. This time he managed to stay down for almost a minute and when he came up again he knew he was safe.

It took a minimum of effort for him to keep afloat in the swift but smooth current. Allan gingerly felt over his burned leg and for the first time discovered he was bleeding heavily. The beam had taken away some upper muscle tissue was well as skin. Function seemed unimpaired, but the wound was nasty.

After another half kilometer a natural eddy swept Allan toward the bank. He recognized the area and realized there was a place of refuge close at hand. When his feet touched bottom he fought the current to stand erect, finally staggered ashore. The effort spent him again and he had to lean against a tree. When he recovered he went on, hoping he was not leaving a bloody trail in the grass. He had no idea how long it took him to reach the rocky hill and the limestone cliff. If the female dwarf was now on the prowl she would find an easy victim. But only the noises of the smaller animal population disturbed the night and he found the rock face and its concealed cave with no difficulty.

After carefully pulling the vines together behind him Allan struggled up the slight incline to the grotto. In the pitch darkness inside he sat down and finished ripping off the trouser leg partly burned by the laser. Unable to make a tourniquet, he compromised by wrapping the cloth tightly around the wound, placing his left palm over it and lying with

the weight of his body on the hand.

Instead of sleep he felt the familiar black fingers again closing around his mind—he must have lost a lot of blood. His imprisoned hand was swiftly growing numb and Allan could not tell if the bleeding had slowed or was carrying him toward death. But he knew with absolute certainty that he could not rise from the powdered limestone floor, that he must live or die on what he had managed to that point. The blackness deepened and Allan surrendered his hold on life and let the fingers pluck him up and cast him into a wider, stronger river, where he floated toward a more lasting darkness.

III

"HEY ALLAN TRUEHEART, wake up there."

He opened his eyes and shrank back from the incredible countenance bending over him. The huge flattened lips that extended ten centimeters beyond the lumpy nose twisted into a grin. "Come on, Keeper-of-the-Earthman's-Burden, on your feet. We're going for a little walk." The voice was high and peremptory, hauntingly familiar to Allan. What he saw he could not believe. The rough clay statue had come to life and was kneeling beside him, one crude arm extended to help him up.

Allan closed his eyes to the nightmare, but it refused to go away. Instead he felt a large hand pulling him up and he reluctantly rose to his feet. The effort made his head swim and he staggered—only the supporting clay arm kept him from falling. He opened his eyes again, and saw that the little circular cavern was lighted by a dim blue radiance. He glanced at the roughly outlined face towering a foot above his head—and quickly looked away. The sight was unacceptable to the senses. He had to be delirious.

"Come on, fella, let's take a little stroll and say hello to your friends in the Safeguard Squad. They're looking for you."

One grainy arm moved across Allan's back and a huge hand clasped him under the right armpit. As the ponderous body urged him forward he instinctively gripped the supporting shoulder and was partly carried to the low tunnel. The living statue had to stoop to miss the ceiling. As they walked down the gentle slope Allan felt the rough clay under his hand. The surface did not move and shift to indicate internal muscular activity. With thumb and forefinger he tried to pinch off some material but could not.

"Leave off trying to steal my corporeal substance there, fella," said the slightly high but pleasant voice that Allan knew from long ago, but still could not place. They reached the vine curtain and carefully maneuvered through it. Pollux was almost overhead, its yellow rays highlighting another day on a nearly perfect world.

Allan had revived slightly, though dizziness was a constant menace, waiting a chance to pounce. He recognized the now familiar effect of the drug as a deep and abiding lassitude, but he was also feverish and not fully recovered from the shock of a serious wound. As he and the statue started through the woods, moving faster in the open, the exertion brought blackness swirling toward him. Just before it hit Allan finally remembered why the statue's voice was familiar.

"Clay," he gasped. "Clay Forrester—" And then consciousness retreated and hovered, taunting him, just outside his skull. When the dark clouds lifted his companion was chuckling aloud.

"Straight on, fella, straight on. This is ol' Clay talking, or at least his personality as you saw it when you knew him."

"But—but why?" Allan asked, feeling helpless and lost. "If you aren't human—"

"You'd have a hell of a time communicating with me in my elemental form, junior. And that would be a pretty good yuk if you understood it, 'cause it happens I *am* an elemental. And I chose Clay's personality out of the several I could have formed from your memory 'cause this body I'm activating is made of the stuff and that's just the type of campy joke he'd like. It also fits in with the fact I've got to lay a few heavy words on you, and Forrester never dug anything more than displaying his superior erudition. So just call me Clay."

That description of his former college friend was accurate enough. Allan remembered Clay with fondness, though he had an exasperating affectation of using colloquial horrors of speech that had enjoyed a brief popularity and then died into history. Clay had remained a reacher when Allan joined the P.P. Corps and, to the best of Allan's knowledge, had carved out a successful career for himself on Earth.

They had reached the game trail and Allan heard voices around a bend ahead—one was Victoria Gant's.

"Yeah, they're lookin' for you, daddyo," said Clay, the wide flat lips grinning in earthy mockery. "Stand to the side and I'll hide us

by casting a spell that'll dazzle the minds of men."

NIGHTMARE or delirium, the experience was terrifyingly real. Allan clung to a sturdy bush and waited, Clay standing by his side. Victoria and two men Allan did not recognize rounded the bend. These strangers had to be the male members of the jury. One had a plastiskin strip across his forehead. As they passed, the bandaged man turned and looked directly at Allan. In two cold and remote gray eyes Allan read a lingering fascination with—and hunger for inflicting on any prey available—the finality of death. A hunter's madness.

Up to this point Allan had accepted the unacceptable with numbed acquiesence. When the killer looked through him and continued to search the woods on both sides, it finally became too much to bear. He waited until the three hunters had passed out of hearing and said, "I can't believe this any more."

Clay chuckled, a light, pleasant sound. "It took a pretty good tolerance for you to come this far, dad. But brace yourself—the worst is yet to come."

"If you can keep them from seeing us," Allan said slowly, "can't you do something about my physical weakness? Lend me some of the strength you've got animating that clay figure?"

"Could, but ain't gonna—want you just as you are for reasons of mental health you'll understand better later. Let's follow your dedicated friends for the moment. And go ahead and talk—they can't hear us."

They stepped into the trail and started after the three humans. "Who are you?" Allan demanded. "Or what are you?"

"I told you what I am, Allan—an elemental. We were around before your ancestors swung that first bone club and will be here after your descendants have mutated themselves up the ladder. But just to keep from making this too simple, only a small part of my consciousness is in this sloppy form supporting you. Most of it is back on the old home grounds, Mother Earth and environs."

"God is a concept alien to—" Allan began.

"Naw, that's too simple also, Allan, baby. There's nothing anthropomorphic about me in my basic form."

It was too much. Allan's logic and reason failed and his trained mind was useless. And then with a flash of insight he saw his way clear—and accepted the fact he was dealing with matters beyond

logic and reason. A soft chuckle came beside him and he realized that Clay was reading his thoughts as they formed.

"Yeah, keerect, dad. Logic and reason do have to be expressed, though, before you can place me in context. Not even I can follow the subprocesses that eventually produce a mental verbalization."

For a moment Allan had managed to forget his physical weakness. He was reminded when dizziness again assailed him and his legs abruptly buckled. Clay supported him without slackening his pace. After some moments of foot-dragging the spell passed and Allan could walk again.

"I think I've made the quantum jump," he said aloud. "Okay, I'm in a new universe. But I'm lost. Guide me."

"That's what I'm here for. Tell me, Allan, when you were a small child and looked at the sun, what did you see?"

Allan thought for a moment, then said, "A big white ball in the sky that hurt my eyes."

"And when you were a teenager in Preparatory—what was the sun then?"

"A mass of gases heated by atomic processes in a central core, the source of all energy in the solar system and probably of all matter. The sun was an incredibly complex mechanism and only specialists understood it in depth."

"And when you became to a degree a specialist during your astronomy courses in college?"

"I moved from external large basics into fundamentals, more details. I learned how and why the hydrogen-into-helium fusion process works, how other elements are created, the complete life cycle of a star. I also learned there's a great deal we still don't know and may never know."

"Right. And during these years that was the same sun sitting out there, not changing to any appreciable degree. Your grasp, your understanding of it changed. Now as to what I am—you're just at the small child stage, Allan. You've got a long way to go to reach Preparatory, much less college."

"Then you're a higher intelligence? I've found a more advanced life form than man—you?" Even as he spoke Allan realized his words sounded distorted, as though they missed the real point.

Clay sighed. "No, damn it, I'm above intelligence and evolution. Those concepts are meaningless when applied to me. I told you—I'm an elemental, as much a part of Earth and the sun as the gravitic force that binds them together. Use the previous analogy

but substitute intelligence for the sun and you'll have a better idea of what you really know on the subject."

That hurt. Allan found his reason rebelling, but the conviction that he had just heard an unyielding truth slowly swelled and grew until it overwhelmed him. His voice was dull when he finally acknowledged the bitter fact. "Then—my life has been wasted. I've specialized in the study of intelligence and made hundreds of decisions that vitally affect entire species—based on what I thought we knew."

"Wrong again. When the sun hurt your eyes you learned as a child not to stare directly at it—that was learning by immediate personal experience. In school you switched to new learning techniques, the manipulation of symbols and concepts. The process lost immediacy, but the volume of learning grew tremendously because of the nature of the working medium, the ability of symbolical representation to condense tremendous amounts of knowledge into forms that can be quickly absorbed. In dealing with intelligence, Homo sapiens is still in the personal experience area and is going to be there for some time. You learn as you grow, doing the best you can with what you know at the particular moment. You can't refuse to act simply because you know a deeper understanding will come after you've advanced to an entirely new technique of knowing and learning."

THE changes in Allan's personal orientation were coming too rapidly, were too profound for absorption. He had not yet fully accepted the testimony of his senses about the reality of what was happening.

"Then why are you telling me about heights I'm never going to reach? What do you want?"

"Well, laddiebuck, now that we've cut the watermelon rind we get down to the juicy heart. You've finally strayed from the straight and narrow by making a wrong decision and you're about to compound the error by following it with a second one. I'm here to change your mind on both, if that can be done without actual interference. We elementals have our own rules—there's no such thing as total freedom anywhere in the universe—and one is that we don't interfere with 'lower' life forms. Sound familiar? But if you choose a new path when we finish our walk, especially considering that you're not going to believe this conversation tomorrow anyway, then I haven't bothered you any more

than your research stations bother the dwarfs. And to hit 'em in reverse order, that's the second wrong decision you're about to make, that our short look-alikes aren't intelligent. They are."

"Not as I understand intelligence at my child's level," said Allan stubbornly.

"Technically and temporally you're quite right, but you've got a short-term perspective. I was on this planet about forty thousand years ago for reasons that are none of your business. At that time the dwarfs would have passed your tests. Your own ancestors were scavenging carrion for a living back then, incidentally. That's when these long-toothed shorties made this statue of the form I took. I kinda' liked it and told the clay to hang together. Then this world warmed up a little and turned entirely too lush. The result was that earning a meal became too easy and the dwarfs regressed. All they really need are some hard times and those are coming within a thousand of their years. This continent is going to dry out and wrinkle up like an old apple. Five thousand years after that they'll be finding some of your artifacts and writing learned papers on the unexpected metallurgical abilities of their primitive ancestors."

"I don't have any choice but to accept that—as I accept you—"

They had caught up with Victoria and her two companions, who were standing at the river's edge, discussing the possibility that he had survived the swift water. He learned they knew the laser beam had caught him and considered it likely he had drowned. Two other squadsmen had launched a raft upriver and were poling it toward them, searching the banks for his body.

Allan had reached a temporary equilibrium between drug and fever and for the moment was having no difficulty clinging to consciousness.

"What's the first mistake, the one I've already made?" he asked the hulking figure beside him.

Clay sighed again. "Now we get down to the real nitty-gritty, Allan. Brace yourself, 'cause you ain't heard nothin' yet."

Allan had already heard more than enough, but he tried to compose himself to accept the worst.

"You've already made a firm decision to reject that deputy administrator's job," Clay said slowly, apparently picking his words with care. "You did this for a purely selfish reason—the fact that the life you lead now is a hell of a lot more exciting and interesting than anything Earth can offer. I want

you to change your mind. The P.P. Corps will need you in that top spot when Siggi Wilson leaves and with all its faults it's a good organization. Some of my fellow elementals in other systems—including this one—want the work you're doing to continue. And on the personal level—you're about spoiled for field work anyway. Take the bigger job and quit while you're ahead."

The world turned dark again for Allan, but this time he recognized the encroaching blackness as a frantic defense against believing what he had just heard. He forced back the tempting oblivion.

"What do you mean I'm spoiled for field work?"

"I'm sorry this has to be hard to take, Allan, but keep in mind that the cut a surgeon makes to operate could kill a man if that were the intent. Instead it's the first step in the healing process. You have more than a touch of arrogance in you. It's a common fault of the competent. With all the good intentions possible, you're beginning to think and act too much like these Safeguard cats looking for you—like a man who knows for sure he's right. It's a dangerous and unforgiving attitude. I think you'd better move on up the ladder and let a younger and more idealistic person take your place."

Clay turned and began walking back down the trail, still supporting Allan. "I don't think they're going to find you in my little hideaway and when the fever eases you won't have much trouble getting food and water. They'll be guarding the shuttle from Main Base next week, but you should manage to sneak aboard somehow. Competency is a virtue as well as a vice. In any case, it's your problem."

Allan was silent on the short trip back to the cavern, trying to digest what he had learned. It was too much to be absorbed at once. Being on his feet for almost an hour had finally drained his strength, and he was losing his precarious hold on full consciousness. Despite the confusion in his mind he remembered at the cliffside to ask a final question. "How will I find you on Earth? You can't just show yourself to us and then disappear. Where are you in our solar system?"

Clay chuckled. "Man, you're centered on the geographical and temporal location bit—look, dad, I don't want you hunting for me and this little conversation has to be strictly confidential—not that anyone would believe you anyway. Mankind has to grow up to us—not just find and try to exploit us. Think about that. And when you recover remember this as

just a vivid fever dream, where maybe you gleaned a few pearls of wisdom from the submerged iceberg part of you."

They passed through the vine curtain and it was the last thing Allan saw for two days.

HE AWOKE to a knowledge of serious bodily dehydration, but his mind was clear and the fever had run its course. He staggered outside, hoping that the female dwarf was not at home. After drinking from a forest pool and eating some thoroughly ripened fruits he felt much stronger and returned to the cavern. In the darkness he made his way to the clay figure at the rear and carefully felt over it. The statue was as lifeless as when he had first examined it, but seemed to have shifted its position slightly. With only memory to guide him he could not be sure. Without a light he could not even check the floor for large flat footprints, nor could he find the source of the blue light he remembered had illuminated the cavern during his fever experience. Still, he had not the slightest doubt of the reality of the experience.

Four days later he crouched behind a thick bush only a few meters from the charged fence protecting the station. The aircar from Main Base was just settling to the ground and Allan saw with approval that it was going to shield him from the laser-armed gardener working at the rear of the building. When the pilot stepped outside and was also hidden behind the aircar, Allan picked up the heavy stile he had made and walked rapidly to the fence.

Without cutting tools or power Allan had been forced to use dead branches and vines to construct the inverted-V stile, but it would get him over the two-meter high wire. He held it by one leg and carefully manhandled the other over the top strand. Each leg had lashed side braces to hold it erect. He moved carefully up the vine-tied crosspieces and had just reached the top when a low voice called, "Nice try, Conscience."

He froze, then slowly turned, keeping his hands carefully in sight. The out-of-uniform space serviceman with the murderer's eyes was standing a few meters away, laser rock-steady on Allan's chest.

The two men looked at each other. In the coldly controlled face below him Allan saw all he needed to let genuine fear show on his face. The killer drank it in, his mouth opening slightly. When he began to smile in anticipation

Allan hurled himself to the side in horizontal dive over the fence.

He felt the burning touch of death in the air above his ribs. He landed on top of a young green bush, his next course of action already thought out.

It took five seconds for a small laser crystal to cool between pulses. Three of those were gone by the time the breaking branches had cushioned Allan's descent to the ground. He had curled into fetal position during the last stages of his drop and he landed almost on his feet. He left them again instantly in another long dive into a shallow ditch he had spotted from the stile. Briefly out of the killer's sight, he opened his mouth and yelled.

A surprised face appeared in the nearest window of the aircar. The face of his intended executioner rose simultaneously above the top of the stile. The man hesitated, looking from Allan to the copilot of the aircar and back again. He seemed to realize it would be impossible for him to hide the fact of naked murder. He stepped down from the stile and silently faded into the woods.

For a moment Allan remained where he was. The copilot of the aircar had swung to the ground and was approaching him at a trot. Allan recognized him as Jacques Flomain, the civilian flyer who had delivered him here two weeks before. He was carrying a laser in one hand.

Jacques kept his gaze on the quiet woods outside the fence and called, "Run for the aircar, Conscience—I'll cover."

On a world where a Safeguard Squad existed and at least two space servicemen out of uniform roamed at will and one killed on command, it was impossible to know friend from foe. Allan had planned to try to reach Magnitsky, of whose honesty he felt certain, without trusting another person. Now he had to chance Jacques' and the other pilot's being trustworthy.

Jacques had advanced to the head of the shallow ditch, where he stood with his pistol pointed at the woods. Allan pushed erect and, crouching low, ran for the far side of the aircar.

"I DON'T understand," Magnitsky said sharply. "You're sure the masked judge was Victoria. You are reasonably sure one juror was Margarete Olmedo and you think you know both the prosecutor and your assigned 'counsel.' Why won't you prefer charges?"

"Lack of any proof better than

my word against theirs," replied Allan. The aircar pilots had brought him to Main Base immediately and were seated in Magnitsky's comfortable office. "Besides, my prosecuting Victoria and her immature crew would only make them happy. Fanatics are always willing to 'die' for their 'cause,' not that these people would draw anything like a death penalty. I think it was Wilhelm Stekel who said it best two-hundred Eryears ago: A mature man wants to *live* humbly for what he believes. If you had been at the trial you'd have seen how little Margarete and Victoria wanted to kill me, even though the roles they had adopted have forced them into it. I suggest you transfer all of them back to Earth, where they can work for the New Romans in legitimate ways. I'm more concerned with the space service officer responsible for those two roving 'jurors.' After the election we have to start rooting out the bureaucrats and officers who support these extralegal activities."

"Of course I'll send Victoria and the rest back if you won't prosecute," said Magnitsky. "In the past I've had some reservations about the mission of the P.P. Corps, but now that I see what would happen if exploiters like the New Romans took power, I'll certainly vote Conservationist."

"So will a few billion others when Earth hears about the Safeguard Squads," said Allan, rising. "And I *am* filing charges against the two spacers. We can't have killers like that gray-eyed fellow roaming loose. Service HQ is preparing a gallery of all military personnel assigned to this solar system and I'll point out the ones I saw unmasked. We have Flomain's word to back mine on the ambush at the fence. From those two the Inspector General can work his way up."

They shook hands, Allan headed for the landing field, where a planetary shuttle waited to lift him to the neverlander just entering orbit overhead. At the entrance port he paused for a last look at the lush and verdant woods of Zwergwelt, wondering how often he would be able to escape his new office and walk again through such primeval beauty. Not frequently, once the bureaucracy got him in its grip.

Allan gazed in the direction of a small hidden grotto, where a crude clay figure sat in lonely but majestic splendor. There was still no doubt in his mind of the authenticity of his experience there. "I hope to God you're satisfied," he murmured and entered the shuttle. ●

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At last the slaughter was at an end . . . maybe . . .

DAVID MAGIL

THE WAR MACHINE

NO ONE knew when it had started—some time in prehistory—and it had never stopped. It had always been, had always gone on. The only pauses had been for moving. When the destruction had become too great for Tyne the same positions were set up on Skoob. Skoob had protested, so the armies had moved to Semreh—and then it had been the planet Drith and then Narb, Adnap, Raeb and on and on from planet to planet, farther and farther from Tyne, from home. And no one knew how it had started, no one

knew why they were fighting, no one knew any way to end it. No one but Sergeant WaDyTyne.

He was not with his troops. He had deserted them. He was crawling along a jungle path, five hundred yards in front of his front lines. He had gone mad. He kept telling himself so. It was necessary that he be mad. Otherwise all hope was lost. He told himself that he was simply insane, had been driven insane by the years on the island, by the war. He crawled along slowly, hoping and praying that he had lost his mind. If he had, he thought he might do something. If not—he knew that he was going to die.

He was out alone for the first time. It was terrible. He knew the jungle temperature was suffocating, yet his blood felt as if it were freezing. But he kept moving. He had to keep moving.

If he were right—if he had lost his reason—he would end everything. He would end the war.

The smells of the jungle were nauseating—they were the odors of death, of rotting and of killing. Crawling, listening, trying not to let the sound of his breathing be heard, he slowly inched along. He had to do it. Even if he failed he had to try. Even if he failed because his commanders were too stupid to take advantage of what he planned. But they would not let him down. After centuries, after millennia, the one thing they were all poised to do was take advantage of advantage—any advantage.

He moved along. He hadn't thought about his path. He hadn't allowed his brain to think of anything. He was a raving lunatic. Because of that he would do what was necessary. He would have only minutes, but minutes would be enough to at last end the war.

He held his breath. He heard the Zytynes. They were directly in front of him. He waited, listened. Had they heard him? They had not. They were still talking. Slowly he regained his breath and then, very silently, slithered around and crawled past the Zytyne advance point.

He was going to do it. He knew he was going to do it. Because he was mad. But was he behaving madly? No. Crawling was sane. He should not crawl, not if he truly had gone mad. But if he stood they would shoot him down. Or would they?

HE STOOD up and waited for the blast that would kill him. None came. He walked upright and then remembered that no one walked upright. He let himself slouch and stumbled along. At first he forgot about stumbling,

but then he remembered. This was not a smart army—neither army was smart. No one stayed in a state of war as long as these men and remained military. So he slouched and he stumbled and kept on the path, not off it.

The night was dark. He kept his eyes lowered. He had trouble breathing, but he made himself breathe. He walked through them. He rubbed shoulders with a patrol going out. No one said anything to him. He went on. He stumbled, almost tripping over a Zytyne with dysentery. The soldier swore at him. But he kept moving, past them, away from them, into them. He kept getting closer.

And then he saw it.

It was housed in the big dome. He had never seen theirs before. But it was the same. Both sides had the same.

He thought about going into the jungle again, getting it from the rear, but then he reminded himself that he was not sane. He walked straight toward it. He took a grenade out of his belt and pulled the pin. Only his thumb kept the fuse from going. If he had to go with it, he would. He was crazy. But he was going to end the war.

The guards were just doing a normal sentry pattern. He took his gun out and held it ready. He would try to get as close as he could. All he had to do was knock it out, jar it. Even a few minutes—just minutes—would be enough.

He was going to do it. He actually was going to do it.

He kept walking—the crouching, stumbling, weary walk of a soldier. A hundred yards to go. No challenges yet. Seventy-five yards. He really was going to make it. Fifty yards. Twenty-five yards. No challenges.

He was going to take out their War Machine.

There were eight billion Tynians. The War Machine had them all on tape. The War Machine could predict an attack as fast as one could be planned. The War Machine could counter a counter-attack as fast as one could be mounted. All through history neither army had ever advanced, had ever gained an advantage because of what the War Machine knew. It knew the brain patterns of every Tynian who had ever been born.

Twenty yards. Even if he stopped or was shot down he was close enough. He was close enough to stop the machine for a second. Just a second, maybe—but even a second would be enough.

"There's a truce on, Dy."

He froze.

"There's a truce on. You want to blast, go ahead. But there's a truce on," the sentry said to him.

"I got here," WaDyTyne said. "You lost. Even if you hit me I'll take it with me. I fall, it goes. Look."

"I know. You think we haven't been watching you? The readout said you'd be here."

"No!"

"Sure. You know you can't beat it. Nobody ever has."

"What else did it say?"

"You're a sergeant. Stupid Dytyne name, Wahrdytyne or something. Said you're pretending you're mad. Look. The truce just went in. We're supposed to tell you that we'll provide transportation back to your lines."

He knew it was so. The War Machine knew. The War Machine always knew.

"Look. The thing said you're not going to blast. Here, walk on up to it. Go in if you want."

He looked at the sentry. It was so, but it wasn't so. He believed it, but he couldn't believe it—he didn't want to believe it. He walked right up to the dome. If he lifted his thumb. If he just lifted his thumb, standing right there.

"Why a truce?"

"I think it's over. Your guys and our guys are having a big staff conference on it. Right now."

"A staff conference? Together?"

"The way I heard it there was a revolution back home."

"So?"

"So they decided it's not worth it. The new guys don't want the war any more."

"You're lying."

"Listen. Do you hear any fighting, any artillery? There hasn't been any in a long time now."

"It's over?"

"Yeah. The way I hear it, it's over."

"We're going home?"

"No, Dy. Not home. They don't want us."

"I don't understand."

"Too expensive and they don't think we could reintegrate. No carriers to take us home. They're not going to send any carriers for any of us."

"What are we going to do?"

"The War Machine is trying to figure it out."

"Yeah? Look. If you're not lying, you'll let me go in."

"Go ahead. Hey, and call out what it says, huh? I can't leave my post, truce or no truce. You know?"

HE WENT inside to the readout screen of the not very big machine. He recycled the printer. And then, still holding his thumb in place of the grenade pin, he carefully watched.

The War Machine was still. The printout read:

IMPOSSIBLE REJECT REJECT REJECT NOT POSSIBLE REJECT RECYCLE RECYCLE RECYCLE UNDERSTOOD

And then there was a gap. . .

He waited and watched the screen. It wasn't a gap. There was nothing. He pushed the accelerate lever—it was clearly marked on the control panel. Nothing happened.

"What's it say," the sentry shouted in.

He got up and slowly walked outside.

"It says that it understands. Maybe it's dead. Maybe peace kills them. Maybe it's really over," he said, troubled, upset, searching, finding, pulling the pin from his pocket and slowly, carefully fitting it back into the grenade's safety.

"You know what I think," the sentry said. "I think we'll get back."

"How's that?"

"First we take this planet and we use it to hop one step closer and then the next planet and then the next. Maybe a thousand years, but we'll get back."

"And then what? I know. We land back home at the Spaceport and set up our positions and then our War Machine goes up against the other War Machine.

"Never thought of it like that. Makes you wonder. Maybe that's the way the whole thing started."●

LEE KILLOUGH

CARAVAN

Whatever and wherever the forms of life, they survive by struggle!

A BLOW was coming. Tleth tasted it in the pre-dawn wind that hissed across the top of the dune, snapping his robe and flattening it against his thin reptilian-looking body. It would reach them tonight at the latest, he judged—a full ripsand.

He looked south, scalp furrowing in displeasure. Dakshan was still more than a day away. He should never have agreed to take the passengers. If the caravan had been on schedule to Moveen instead of off-routing to leave polesman Kreesh and his shes at Dakshan, it could have sheltered in scale-rock hills by midday. Now it faced the chance of meeting the blow in open desert.

Below him the shiffeners were starting to unroll and make the first meal over their fire pots. The hobbled shiffen spread beyond them, long heads and necks snaking out in search of the wiry clumps of dune grass. Kreesh and his shes still slept, three bright humps of fabric on the sand beside their huda and packs.

Tleth stared broodingly at the scene, tasting the wind again, then plunged down the dune in a slide of sand and pebbles.

"Rig up," he shouted.

The shiffeners turned heads, yellow eyes querying.

"Ripsand coming," Tleth said. Their elliptical pupils dilated. They scrambled to unfasten hobbles and clip reins to the nose rings of their animals. The reptiles tried to dodge, hissing shrilly in angry protest. Their long tails lashed at the shiffeners with vicious accuracy and an occasional broad foot struck out as it was unhobbled.

Tleth toed Kreesh.

"Wake up."

The polesman rolled over and sat up blinking groggily.

"Caravanmaster," he muttered in greeting.

"Get your shes ready to travel."

Kreesh peered at the sky.

"It isn't yet dawn," he complained.

"We'll need every extra hour if we're to make Dakshan before the blow."

"Blow?" Kreesh stiffened. "A bad one?"

Tleth suppressed a hiss. As though any other kind would concern an experienced caravanmaster.

"I doubt my caravan and I can withstand it in open desert—certainly neither you nor they can," Tleth replied, jerking his head toward the shes peeking sleepily from under their hoods. "We leave as soon as we have our meal."

The caravanmaster turned away, trying to hide his dislike of Kreesh only because the latter might mistake it for prejudice.

Tleth did not subscribe to the belief that just because the pole tribes had vestigial scales on their scalps and spines in contrast to the smooth yellow skins of midworld tribes, they must necessarily be backward and barbaric. But neither would he respect any male irresponsible enough to bring egg-heavy shes across the desert in blow season. Kreesh must be aware, even coming from the quiet deserts of the poles, that if the shes were brought to nest out here there could be no protection and any wind above a stirsand could erode the shells before they hardened.

THE protests of the shiffen subsided gradually as the animals resigned to being loaded. A few tails still lashed, but sullenly, no longer aimed at any target. Tleth checked each animal, making sure the load was balanced and the rig straps lying flat between the shiff's spines. He paid particular attention that the two halves of the huda were secured snugly and that the padding was unwrinkled between them and the shiff's hide. Only when the caravan was ready to travel did he accept the mug Shiah, his head shiffener, poured for him.

Normally there would have been conversation and joking in this pause before the day began. Today they washed down biscuits and hurriedly packed the pots. Kreesh and his shes were lifted into their huda and the shiffeners scrambled onto their animals, into the space at the junction of the reptile's neck and trunk.

The caravan moved out in a long, shambling line. Tleth set the course and a pace as fast as the shiffen could manage at this temperature and let Shiah maintain it while he ranged his more lightly laden shiff back along the line, keeping it in order. He checked the sky often. If they kept moving they might have a few hours' margin to make Dakshan.

Dawn came not long after they left the sleeping ground. The sky had been lightening gradually along the horizon but there was no more prelude than that. Suddenly the sun was there—small, white and bright.

The shiffen felt the heat almost immediately. Tossing their heads, they hummed softly in welcome. As their blood warmed they were able to move faster and a few, feeling good, nipped at animals ahead.

Tleth moved in to break up an impending fight between a bull and a castrate who mistook the male's playfulness for amorous advances. The caravanmaster snapped his lash at the castrate's sensitive muzzle. The reptile hissed but straightened around in line. There was no

need to discipline the bull—he was busy licking the gouge the castrate's teeth had left on his neck.

"Watch him," Tleth told the shiffener in line behind the bull. "Get between them if he acts up again."

WITH day and warmth the desert's pre-dawn quiet vanished. Small reptiles appeared on the dunes to sun themselves or hunt smaller creatures in quick, darting chases. Flyers swooped through the sky to circle above the caravan with a beat of leathery wings and occasional hoarse cries. Tleth watched them. Flyers meant the air masses were still not too turbulent. When the dhanzals and ganra grounded, it would be time to hunt cover.

As the morning passed and the heat increased, the color of the sky paled until it was bleached nearly the same gray-white as the sands beneath it. But otherwise it remained clear. Even the horizon was unmarked by clouds or sand spouts.

"Are you sure there's a blow coming?" Kreesh asked irritably when Tleth paused beside him briefly.

The caravanmaster regarded him without expression.

"Yes."

Beyond Kreesh, in the other half of the huda, the shes rode silently, their faces set against the jar of every step. Tleth's mouth thinned as he studied them. If he had seen them before he accepted Kreesh's money, he would never have agreed to take them. How could the polesman be so insensitive?

"If you're worried about making Dakshan, why don't we cross those flats rather than follow the dunes?" Kreesh demanded.

Tleth did not bother to look in the direction the other was pointing.

"Those flats are sink sand," he said.

One of the shes sat up in astonishment.

"All the area?"

"Most. It is the main reason blows are so dangerous here," Tleth explained. "Sandwaves are quite common with the greater winds."

The shes paled. Even Kreesh looked uneasy.

Tleth regretted frightening the shes. To distract them, he pointed out a long gray mound like a very low dune in the middle of the sink sand.

"I don't believe you have tarrays at the poles. They're species of swimmer, but larger than any you have. They are the biggest animal in the world."

The shes stared wide-eyed at the gray shape.

"How big?" one asked.

"That one is about a hundred meters long, I'd estimate. Average for the species. The jets are closed but if you look closely just above the sand you can see its body fin moving to keep it on the surface. They come up several times a day to sun and saturate their blood with oxygen. This one will probably dive again soon."

They regarded it with caution.

"Will it attack us?"

He shook his head reassuringly. "No. Tarrays prefer the sink areas to the denser sand of dunes and normally eat just small swimmers and burrowers. We have to worry only if we make so much noise it thinks its territory is being invaded."

As he spoke the tarray rippled once and sank out of sight, leaving a fine spray of sand in the air behind it. A wave slid along the surface in the direction the tarray had taken, diminishing quickly until only expert eyes could distinguish any motion in the sand.

Tleth glanced at the shes. They were watching, fascinated, their discomfort momentarily forgotten.

"Will it come up again soon?" one asked.

"Probably not, but another may. This sink is large enough to support many tarrays. You'll hear it first, a rumble like thunder. Then the ground will begin to shake and—"

"Tleth!" came a shout.

THE caravanmaster looked up. Shiah was waving at him. Tleth flicked his shiff's neck with his lash, pushing it into a rough trot, and rode forward to his head shiffener's side.

"Trouble," Shiah muttered, pointing with his lash at dhanzals circling to the south and east of them.

Tleth's forehead wrinkled.

"It could be another caravan," he said judiciously.

"No ganra," the shiffener pointed out.

The small flyers were fond of mites that commonly infested shiffen hides. Wherever shiffen were, ganra appeared. The furrows in Tleth's forehead deepened.

"So we may assume we're being tracked by raiders."

"Must be desperate to be out now."

"Or clever. Their timing has certain advantages, provided they have shelter somewhere near," the caravanmaster said. "No one in Dakshan will worry if we don't arrive before the blow. And by the time it occurs to someone to search for us after it, no signs will be left of where we were attacked or of the shiffen taken. Our bodies would be in the sink."

"What shall we do?" Shiah asked calmly. "We can't group and fight with that ripsand coming. And if they're riding zhazen we can't outrun them."

Tleth twisted to look back over the caravan and at the horizon behind them, then quickly scanned the desert around them. Caught between raiders and a blow, one made defense against the other all but impossible. All but. He rubbed a neck spine on his shiff absently. There was one possibility.

"We can increase their difficulty in attacking us," he said slowly, weighing the danger, "and maybe cut the distance to Dakshan in the process." It was not an ideal solution. Any other time he would not even have attempted it with shes along. "We'll cross the sink."

Shiah's pupils dilated, but he nodded in acknowledgment and turned his shiff away from the bottom of the dunes toward a narrow gray strip stretching out into the slightly paler sink sand.

The nearest shiffener behind him sat up in alarm.

"What—" he began, staring at Tleth.

Silently the caravanmaster pointed out the flyers across the dunes. The shiffener's question died and he guided his animal after Shiah.

Tleth was not worried about his shiffeners. Not all ranked as members of his regular crew but all had had enough caravan experience to confine themselves to handling their animals, trusting the caravanmaster to route them safely.

Kreesh was the one who might try to cause trouble.

TLETH took his shiff alongside the passengers before they noticed the new direction.

"We're taking a cut route," he told them in his most casual voice. "It's across the sink but there's no danger. There are avenues where the grass holds the surface together enough to support our weight."

"Then why haven't we crossed before?" Kreesh asked with a flash of suspicion.

It was time for lie number two.

"Because we couldn't bed down on it. There are too few safe areas large enough."

The polesman did not look convinced but Tleth could not spend more time on him. The caravanmaster had no intention of mentioning the raiders. He wanted very much to avoid the undesirable effect stress often had on shes so close to nesting.

In the sink there would be only two possible directions from which the raiders could attack. Three guards should be enough to withstand them initially two at the

back, another up front, in case the raiders found a path into the sink that intersected the caravan route. Zahl and Hriss were excellent with skims, he remembered, and he had heard that Manth, new this trip, was also good.

Reining back his shiff, he paced it briefly beside each of the three in turn while he explained the situation in short terse sentences. They fell out of line obediently and took position, Zahl and Hriss at the rear, the new shiffener up with Shiah. Unobtrusively they reached back and shifted their skim pouches from the customary carrying place under the edge of the rig frame to easier access inside their robes.

Tleth regarded them with satisfaction. The raiders would not find it easy taking the caravan now. Nothing surpassed skims as weapons when thrown by strong, accurate arms in open-sand combat. The raiders would have skims, too, of course, but they would have to ride in attack, not ambush the caravan from stationary positions, and their accuracy would be spoiled by the fast, choppy gait of their zhazen.

The avenue of firm sand narrowed as they followed it deeper into the sink. At points it would have crowded two riders abreast. Tleth edged his shiff into line just ahead of Zahl.

He looked back at the dunes they had left. The dhanzals had not yet changed position. It would take the raiders a while to realize the caravan had changed course, but then they would waste no time altering their plan of attack. He fully expected to see them appear behind before a handsbreadth of the sun's passage.

From the dhanzals his eyes slid almost automatically to the northern sky. Still clear. Or was it? Tleth squinted. He thought he made out what might be a trace of hazing just at the horizon.

Facing front again, Tleth whistled shrilly. Far ahead, Shiah twisted around inquiringly. The caravanmaster made a snapping motion with his wrist.

Acknowledging with a wave, the shiffener flicked his animal with his lash. The reptile's narrow head snaked irritably. Shiah touched it again. It flung its head up, then broke into a reluctant trot. One by one the shiffen in line behind it also changed gait. Tleth knew they could not sustain the pace very long but he reasoned that a tired shiff was minor compared to the other hazards abounding in the desert today.

He watched the line ahead closely. A trot was not the ideal gait for control of the leggy reptiles. Not that he could help if one

got into trouble; the avenue here was too narrow.

WHAT he feared was not long in happening. One loose shiff, its stride longer than that of the animal ahead, overtook and rammed into the other. The one in front came around hissing. It also swung out and stepped backward, gathering for a charge. The thinner sand at the edge crumbled under its weight, dropping its hindquarters into the sink sand.

Tleth whistled but the signal was unnecessary. The shiffeners in line nearest the stricken beast vaulted off their animals and raced to its aid. Grabbing the edge of the rig frame on each side, they pulled, shouting and whistling encouragement to it. The shiff scrabbled with its forelegs, heaved forward and dragged its hindquarters back onto firm sand. It was shoved back into line and the shiffeners climbed again onto their mounts. The line stretched briefly into a fast trot until it caught up with the rest, who had not stopped.

Tleth wished he could feel relieved. Instead he found his eyes raking the surface of the sink sand repeatedly. How much subsurface vibration had the shiff's struggle caused? He saw Zahl also looking out across the sand, forehead deeply furrowed. An irregular movement up the line told the caravanmaster other shiffeners were doing the same.

The shiffen sensed the increase in tension. Their heads swung uneasily and they rumbled deep in their chests. Shiffeners abruptly began soothing their animals before the rumbles could become roars. Tleth whistled at Shiah—short blasts down-toned at the end that meant hold the line, keep them moving.

"Tarray," Zahl murmured.

Tleth's eyes followed his pointing hand. Far out the sand rippled slightly. One of the big swimmers was coming to see what had fallen into its territory. In imagination Tleth felt the creature erupting beneath him but he resisted the urge to push his shiff into a run and carefully held it to an easy trot a tail's length behind the animal in front.

He did, however, let himself watch the low wave that marked the tarray's passage. It was headed straight for the spot where the shiff had fallen. While he watched, it slowed. It stopped completely several hundred meters out and waited motionless for several minutes. Finally stirring again, the ripple turned and began following a course that paralleled the avenue of firm sand.

Tleth let his breath out gently.

The tarray was only curious, not defensive. It would stand off watching them for a while or, more accurately, reading the vibrations that came down to it from them. If the caravan did nothing to arouse its anger or make itelf appear a food source, the beast would eventually leave.

Until it lost interest, however, the creature made another problem for the caravanmaster to watch. There was a virtue in having so much to think about, though. He realized with some surprise that he had not worried about Kreesh or the shes for some time.

HE CHECKED the sky again. The change of color on the horizon was more pronounced; there was no question now. He whistled for Shiah to slow to a walk again. Why tire the shiffen now? Speed might be desperately needed later.

Presently the avenue widened once more and he pulled out of line to ride forward beside Shiah.

"How do you make our travelage?" he asked.

"We're on a much straighter course for Dakshan than the dune route," Shiah replied. "We've probably cut the distance by a third." He looked across at the caravanmaster keenly. "We might make Dakshan by late afternoon, provided the avenue continues."

Tleth did not miss the emphasis on the last part of the sentence. He was only too aware that running out of path was the most prevalent danger in crossing the sink.

"We're reaching midday," Shiah said, changing the subject.

"We can't stop. Keep the pace. Trot when you feel we can afford it."

"You'll see to rations?"

The stores were on Tleth's shiff. Turning and kneeling on its back, he opened one of the packs. There was no way to brew drink but this would not be the first time they had eaten dry. He handed several biscuits and thin strips of dried panne meat to Shiah and Manth, then worked back down the line, giving each shiffener a like portion. He also shared with Kreesh and the shes, since their supplies were out of reach in their packs on another shiff. It was to be expected that the polesman would not have thought to hold out enough for the midday meal.

Kreesh complained about having nothing to drink. Ignoring him, Tleth moved on. The shes, at least, he noticed, knew enough to be grateful for their portions.

After Zahl and Hriss had been given rations, Tleth held out some for himself and began closing the pack.

"Is the tarray still watching us?" he asked as he worked.

Hriss nodded.

"It has moved farther out, but it's there yet. And look what else is watching us," he said.

He gestured back along the avenue.

Tleth looked only because he wanted to count. There were about a dozen beings in the group following them, all mounted on zhazen, as he had surmised. They did not seem to be hurrying, except as beings might who were anxious to reach cover before the blow. As they might be. Outwardly and at this distance, there was no way to differentiate them from area tribesmen. Until they came close enough for Tleth to see the weave pattern of their robes, he could not discount the possibility that they were merely Dakshas coming home from a hunt or a puberty rite.

"Don't show skims until you're sure of them," he said.

"What if they just ask to pass, then attack when they can back the whole line against the edge of the avenue?" Hriss asked.

"You'll be able to study their robes before that."

"And if they're wearing Daksha robes?" Zahl put in.

"If in doubt knock down one of your shiffen and block the avenue. Pretend you can't get the animal up. And call me. If they're raiders, being stuck behind you while the caravan goes on will force them to take overt action."

"Such as sink skims in our throats," Hriss said darkly, then grinned, adding; "If mine don't end in theirs first."

They watched the group gain on them. The small stocky reptiles the others rode were faster than shiffen and should be overtaking the caravan more quickly if the riders were intent only on finding shelter.

Tleth reached back for the skims in his own shiff's load. The outline of the triangular blades in the pouch felt reassuring as he slid them into his robe.

"Estimate they'll overtake in half a handsbreath," Zahl said.

The caravanmaster agreed, frowning.

"I wonder why they're waiting so long. I think I'll look ahead."

WHIRLING his shiff, he flicked it into a fast trot. Passing the line quickly, he rode ahead of it down the avenue. He wished he knew more about the sink. His only knowledge of it came from two trips made as head shiffener under another caravanmaster years before. What advantage lay ahead that the raiders were

so carefully timing their overtake to use?

It did not take him long to find his answer, literally run across it. The trap lay only a kilometer ahead. Swearing, he wheeled the shiff and lashed it back toward the caravan.

"We run out of avenue ahead," he snapped in reply to the inquiring lift of his head shiffener's forehead. "There's a full twenty-meter break before firm sand resumes."

"We can't go back," Manth exclaimed in dismay.

"No," Tleth agreed. "We'll have to swim."

The two shiffeners stared.

"Tleth—" Shiah began.

"I've seen it done before," Tleth cut in. *Once*, he added mentally. "Move out. Get these animals up there as fast as you can. Unrig and swim the shiff. Drag the rigs. Rig up again on the far side. And hurry. The raiders are going to overtake while we're in the middle of the operation."

"The tarray?" Shiah asked.

Tleth swore. He had forgotten that beast. He checked the distant sand. His mouth tightened. The tarray was moving out, finally losing interest, but that interest was going to revive quickly when the shiffen started thrashing their way through the sink sand.

He thought fast.

"Keep two men on each side, one pair to unrig, the other to rig. They'll send each shiff on as they finish. Keep moving. We'll just have to try to get as many across as we can before the swimmer gets here."

The pupils of the men were so large only a thin rim of yellow remained around them. Even experienced shiffeners rarely attempted anything as dangerous as this. But years of caravaning had made obedience a habit. Even if they had been terrified, as they might well be, they would do their best to carry out any orders their caravanmaster thought would get to their destination the largest number of animals and handlers and above all cargo. They lashed the shiffen into a trot and kept them at it until the end of the avenue forced them to stop.

Tleth vaulted off his shiff, tore at the buckles of the rig. With Shiah lifting from the other side, a quick flip cleared the cross straps of the spines. The rig landed heavily on the sand behind the reptile. They quickly repeated the operation with Shiah's and Manth's animals. Then Tleth tore the rarely used picket line out of his pack and threaded it through the three rigs, finally handing one end to Shiah.

"Hang onto the shiffen's necks," he directed, "and keep as flat on the top of the sand as you can. You won't sink far if you spread your body weight across a large area. Be sure to brush off the animals' hides on the far side before you rig up."

The shiffen slid into the sink more willingly than the shiffeners. Tleth remembered, from the other time he had helped swim a caravan, that their broad feet worked rather efficiently as fins. The animals left the end of the avenue, reaching out with their forelegs in powerful lunges. As they crossed the sink they gradually sank until only their necks, tails, and spines were visible. The necks and tails spread out to help keep them up while, as Tleth could tell from the violent motion of the spines near their shoulders, their legs were working hard. On the far side they scrambled up and shook themselves, much calmer than the anxious shiffeners they had dragged with them.

Manth and Shiah pulled up the rigs, brushed off the shiffen and reloaded the beasts. Then Shiah tossed back one end of the line. By that time Tleth and another shiffener had the rigs off three more reptiles and the operation was repeated.

"Caravanmaster!"

TLETH tried to ignore Kreesh's annoying, strident voice.

"Caravanmaster—I must talk to you!"

Tleth sighed. Letting a shiffener take over his immediate chore, he stalked back to where the three passengers were standing beside their animal.

"What are you doing?" Kreesh demanded. "A shiffener said we're going to swim across the sink. Are you mad? You can't ask us to do that, certainly not with my shes in their condition."

Tleth regarded the polesman icily through pupils drawn to hairline slits.

"It's a pity you didn't consider their condition before dragging them out here," he snapped. His voice thinned to, "You insisted on coming, however. That makes you subject to my orders—and you'll obey like every other being in this caravan. Shiffen can't swim carrying weight and I intend, above all else, to save my equipment and animals. Of course, if you don't like my orders, if you prefer to stay here and wait for the raiders—"

"Raiders?"

"—coming behind us, I won't try to prevent you from doing so. You have until we reach your animal to decide."

"When did you—"

Snapping around, Tleth ignored

the polesman and marched away, robe billowing out behind him.

He found he was no longer needed up front. The shiffeners understood what was to be done and were doing it as efficiently as though they swam every trip. Tleth was relieved and let them work while he kept the caravan moving up to the break. He paid no further attention to Kreesh, except that he did notice some time later that all three passengers were on the far side.

Hriss yelled, "Raiders—"

The raiders were coming at a hard gallop. Tleth checked the caravan. Less than half was across. Resisting an urge to look for the tarray—there was nothing he could do if it were coming, anyway—he ran for the rear.

"Dismount," he called. "Send up your animals." And as he reached them, panting, he added: "We'll meet them. Try to hold them until the shiffen are over." He reached into his robe. "I have ten blades."

"Ten," Zahl said.

"Twelve," Hriss said.

"Aim for riders."

They nodded.

He looked over his shoulder once more to see how the swimming was progressing. The shiffeners were working frantically, jerking rigs off on one side, shoving shiffen into the sink, barely taking time to brush them off on the other side before rigging up again. There would be sore hides tonight from twisted straps and sand abrasion, Tleth reflected. He caught himself ruefully. Always the caravanmaster. He faced back toward the raiders.

Then he heard a distant rumble like thunder. The sand trembled slightly beneath his feet.

"Tarray."

Zahn's upper body moved wryly.

"We might save half."

"All," Tleth said firmly. He smiled thinly. He would use the tarray. "Aim for zhazen."

"On the ground their aim will be—"

"Aim for their mounts," the caravanmaster repeated.

THE leaders were bearing down on them, sun gleaming on the blades in their hands. Tleth reached into his pouch.

The skim was smooth and cool in his fingers. He drew back his arm, threw with a snap of his wrist and dropped to hands and knees on the sand.

He felt the tug of a skim catching at his robe. The leading zhaze shrieked. It reared and staggered backward, three blades protruding from its broad chest. The rider jumped clear as the reptile crashed

sidewise. The rider braced himself to throw, then went down himself, one of Hriss's skims in his throat.

Tleth threw again. Another zhaze fell, this time into the path of two more riders. The reptile's convulsive movements and screaming panicked the other zhazen. They shied, hissing. One stepped too close to the edge of the avenue and went into the sink with its rider.

The stocky reptile was not built to handle itself well in such fine sand. Zhaze and rider went under, screaming and struggling uselessly.

The shiffeners hit two more zhazen. The animals were only wounded, not knocked down, but their fright and pain left them unmanageable. They bolted backward, compounding the confusion in the main body of raiders. A second zhaze went into the sink.

A raider threw. Hriss gasped and folded, arms clutched across his stomach. Tleth reached for him with a free hand while snapping off another skim. This time the blade only sliced a raider's shoulder and deflected, fell into the sink.

The sand rumbled more noticeably beneath the caravan.

"Back," Tleth ordered crisply.

The raiders stiffened on their mounts, pupils dilating, throwing arms arrested in mid-motion. The caravan was forgotten. Skims were shoved abruptly into robes and the riders fought to control and turn their frantic, terrified animals.

"Run," Tleth said.

Hriss managed only one step before his knees gave way. Zahl kept him from falling by grabbing him under an arm. Tleth and Zahl dragged the wounded being after the caravan.

The last of the shiffen were ploughing through the sink, rigs dragging, driven by fear and the shouts of their handlers. The two shiffeners on the far side added their whistles, watching something beyond Tleth.

The caravanmaster did not look to see what it was, simply ran faster.

At the edge of the sink sand he and Zahl leaped out, Hriss between them. The sand slammed up into them, momentarily taking away their breath. They reached for the trailing straps of the rigs with their free hands and locked tight on them. They were dragged for what seemed hours, the sand filling their robes, eyes and noses and shaking as though about to engulf them.

Tleth's hand began to tire and his fingers slipped on the strap. He dug in his nails but the fingers slipped farther—farther—until the strap jerked completely out of his grasp. He snatched for it again.

Instead of the strap, however, he found another hand. It hauled

him forward and up, onto firm footing again.

The rumble was growing louder. Tleth wiped his eyes clear and looked back. On the other side of the gap the sand erupted. A violent gray-white fountain sprayed into the pale, glaring sky, carrying zhazen and riders with it like so many insignificant pebbles. While the caravanmaster watched with grim satisfaction, the huge form of the tarray emerged from the subsiding sand to investigate the strange invaders of its territory.

"I thought it was headed for us," a shiffener said weakly.

"It was," Tleth said, shaking sand out of his robe, "until the wounded zhazen distracted it."

AUTOMATICALLY he checked the sky again as he spoke, but this time he did not simply make note of its condition in passing. He saw more. The air above him was empty. Some time during the confusion of swimming the shiffen and fighting the raiders, the flyers had gone. At the same time the sky itself had been changing. The hazing on the northern horizon had become a wide black belt dividing the glare of the sky from the glare of the desert.

"Rig up," he ordered sharply.

The shiffeners obeyed without looking. They did not even take

Laumer has contributed five of his fine stories for a collection titled **Timetracks.** *And we have an honest-to-God first novel by Alan Dean Foster—solid, inventive, packed with ideas—* **The Tar-Aiym Krang.** *Then the Pope is at it again with* **The Reality Trip And Other Implausibilities**—*a collection we like even better than most. Douglas R. Mason is back with a weirdo*—**The Resurrection of Roger Diment.**

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WE HAVE *the Anthony Burgess opus* **MF.** *And, of course, his remarkable* **A Clockwork Orange** *which, if you have not read it yet, you certainly should. By all means see the movie, too—it's not as violent or as harsh as the book, but it is, pictorially, just as strong a statement against violence.*

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REMEMBER Stand on Zanzibar? *We asked John Brunner if he would like to do a second novel on a major ecological subject and we are happy to announce that Harper has contracted for hardcover publication of* **The Sheep Look Up.** *They are scheduling it for early fall. And we're hoping for a book-club sale. Elaine Geiger has demonstrated her usual perspicacity and bought Dave Gerrold's* **When Harlie Was One** *for the book club. And that too will later come from. . .* ***BB***

time to mount, once their animals were loaded. Except for Hriss, who was almost unconscious from shock and blood loss, they stayed afoot, trotting ahead of the shiffen and pulling on the reins to keep the reptiles moving quickly. A distant gray line that marked the edge of the sink held their attention.

Tleth looked back every few minutes but only to determine what their pace must be to reach those dunes before the blow reached them. He estimated they did not have long. The stir and stringsand that preceded the glow were already swirling along the top of the sink.

The caravan was spread out irregularly from Shiah to Tleth, but none of the shiffen, even those without any handlers near, were fighting or straying. They smelled the blow now, too, and did not have to be urged into a trot. They wanted cover as intensely as the shiffeners did.

A gust of wind lifted a thin sheet of sand off the top of the sink and sent it spraying across the avenue, stinging Tleth's ankles. The caravanmaster checked the sky again. The band of black was closer, blotting out a full fifth of the sky, and he could see several distant dancing columns carried by small spinwinds. He pulled more vigorously on the reins of the shiff he led.

They could reach the dunes ahead

of the blow, probably, for what good that would do. Mere dunes could not give them adequate protection against a ripsand. They needed a windbreak, preferably the solid walls of a settlement, but at least the partial protection of a thick outcropping of rock.

"Tleth!"

The cry reached him faintly over the rising wind. He looked ahead. A shiffener was waving at him, motioning forward. Following the direction of the being's hand, he saw a flickering light at the front of the line. Shiah was signaling back with a sunflash.

S . . . C . . . A . . . L . . . E . . . R . . . O . . . C . . . K . . . A . . . H . . . E . . . A . . . D, the caravanmaster read.

Scalerock? He squinted against the brightness of the sand, straining to distinguish detail in the rolling land beyond the sink. Yes. The hills looked higher than the rolling dunes they had left, also somewhat steeper. Their faces were blotched with patches of near-black that caught the sun in glints. Scalerock.

He reached for the sunflash hanging on a cord around his neck and sent back: F . . . A . . . S . . . T . . . E . . . R.

Shiah acknowledged. Moments later Tleth saw the foremost shiffen stretch out. Gradually the others followed until the entire line was moving at a trot so fast it was just short of a gallop. The shiffeners could not hope to keep pace with their long-legged animals. They had to vault on, using the reptiles' momentum to lift them into place.

Tleth wished they did not have to burden the animals. The shiffen were tiring fast. It was abusive to expect them to hold this kind of pace and carry riders, too.

NEVERTHELESS, he drove his own shiff harder yet and brought it up briefly beside Hriss's while he peered at the shiffener. The being lay limp in the straps that kept him on, his eyes closed, the face slack. Tleth could not tell whether Hriss was dead or merely unconscious. The caravanmaster's mouth set. Hriss was an excellent shiffener. Losing him would be. . .

Tleth stifled the unhappy twist inside him and looked back to check the blow's progress again.

The twist sharpened abruptly into pure fear. Half the sky was black now. The wall of darkness towered above the desert, obliterating everything behind it, its raging foot touching the paleness of sink sand. But that was not what brought him snapping around to yell harshly at his crew as he lashed his animal across the neck. At the foot of the blackness, the sink sand it touched was not merely

being picked up and churned or spiraled into spinwind columns. The sand was being pushed and lifted and itself packed up into a wall, a sand wall that grew a meter in height for every five forward.

"Sandwave," he warned.

The wind whipped his shout forward. Heads turned for the briefest fractions of seconds. Then arms wielded lashes. The entire caravan broke into a flat gallop, every animal and rider straining toward the protection of the scalerock hills. Even the loose shiffen ran in panic, all weariness forgotten.

Tleth clutched the reins and kept his head tucked tight against his shiff's neck, his nictitating membranes were drawn against the particles of sand carried by the wind. The layer lifted off the sink and, carried with each gust, hazed the ground, blurring color and detail until Tleth could no longer distinguish the edges of the avenue. He was forced to stop guiding the reptile and trust its instinct for footing.

The hills loomed nearer, but so did the double wall of blackness and sand. Tleth could feel the ground trembling—worse, he could feel the shiff shaking with exhaustion.

Thankfully he noticed that the ground was rising. The caravan was reaching the base of the hills. Strides later the leaders passed the first small outcropping of the slick layered rock that made up the bones of the planet. They were out of the sink.

They leaped from their animals to climb the steep narrow trails up the side of the hill between cliff-like faces of scalerock. The men went up on hands and feet, clawing for purchase in the treacherous combination of rock shards and loose sand. The shiffen lunged in uneven, tired heaves, pulled and pushed by their handlers. They fell often and heavily, sliding backward, losing ground. Shiffeners cursed through rasping gasps and lashed the animals mercilessly to their feet again.

A part of Tleth's mind vaguely thought the shapes of the rock faces were somehow familiar but he did not take the time to try to analyze that familarity. He felt as though he were carrying his shiff up the hill. It stumbled on every other stride. Pebbles showered backward from the scramble of its broad feet to sting the caravanmaster's exposed arms and legs. Tleth dug in his toes and leaned against the shiff's quarters, then almost fell when the animal found footing and lunged up the hill away from him. He climbed tiredly after it, hoping it would not stumble again.

THE sound of the wind was reaching a shrill scream when he staggered over the crest. Gulping air into lungs that seemed afire, he stopped to see what kind of shelter the scalerock was going to afford them, To his shock, the shiffeners were not laying their animals down at all but were still moving, pushing across the rocky hill. Disbelief stunned him. The sandwave would reach them in minutes. He could feel it at his back now. If they did not take cover immediately . . .

The thought remained unfinished as his eyes, angrily seeking Shiah, suddenly recognized the sandscape. Approaching from a slightly different direction subtly altered the relationships and shapes of the landmarks but the deep desert instinct in him finally identified them despite that. Dakshan, he knew beyond question, lay just beyond the next hill.

He whistled at his shiff, urging it after the rest of the caravan.

"A little farther," he sang at the weary animal. Their route across the sink had brought them straight to the settlement's rear gate. Shove on, old egg. Just a little farther."

The reptile moved slower and slower, every line of its dragging legs and drooping neck and tail announcing its intention to lie down very soon and ignore both Tleth and the blow. Sighing, Tleth used his whip. But even then the animal slogged up the hill only fast enough to stay ahead of the lash. Then, at the crest, its head came up abruptly. It squealed and hurled itself down the other side. The labyrinth of high gray walls and scale roofs that was Dakshan spread below them. Even in exhaustion the shiff recognized a settlement and knew it meant food.

Just as suddenly the wind stopped roaring in Tleth's ears. It dropped to the whisper of driftsand. Tleth jerked his hood more tightly about his head and forced his aching legs to run faster. Dakshan's entry maze was still almost a half-kilometer away.

Into the silence came a single sound—low, barely audible. It did not remain low but swiftly crescendoed to a roar so great it reached beyond hearing. The pseudo-silence lasted a heartbeat and then was torn apart by the crashing explosion of the sandwave smashing into the high scalerock faces.

Tleth lurched, almost falling. He caught himself on the shiff's rig and ran on. The walls were only a quarter-kilometer away now.

The broken wave reached him as a fine haze of silvery particles sifting down from the sky like the dawn drizzle of the wet season. Another heartbeat, however, and

the blow struck. The drizzle became, suddenly, driving death. The grains, propelled by the mighty wind, pierced the tough fabric of Tleth's robe to stab him like countless tiny skims. He felt no pain, though. Only numbness.

Running blindly beside his shiff, he hoped they were still on course for the gate. He did not dare open his hood and expose his face. Much longer in the ripsand could be fatal to both caravanmaster and reptile. The flesh would be scoured from their bones.

He risked one hurried peek, finally. They were just six shiffen lengths from the entry maze.

As though realizing it was about to lose its prey, the blow slashed furiously at them. But the caravanmaster utilized the added force of the wind to swing through the gate.

The wind screamed in frustration, unable to reach him beyond the protective angles of the maze. Sand still fell in Dakshan, dropping from the blow as it passed over, but the walls shut out the wind.

Inside the settlement, Tleth ran swift, probing eyes over the heaving shiffen and the equally out-of-breath shiffeners sagging beside them—over the two shes and their sick-huddled husband—over Hriss. The shiffener hung on his mount in the unmistakable slackness of death. The caravanmaster totaled the loss tiredly—one man, no cargo, no shiffen. Any reptiles that were lamed would be sound again by the time the ripsand subsided and the caravan could continue to Moveen. Objectively, it was a successful crossing.

"Unrig," he ordered when he had his breath back enough to talk again. His voice was hoarse with weariness. "I want every animal checked for strap rubs, sand burns and lameness and treated before any shiffeners leave the stable area."

The shiffeners groaned.

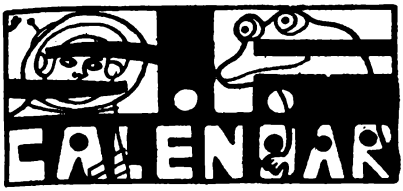
Shiah regarded Tleth with concern.

"Shall I find you a physician?"

Tleth looked down at himself. His robe was shredded and bloodstained. His skin must be raw beneath it. But he shook his head.

"Later."

A pity, came a casual thought as he reached for the buckles of his shiff's rig, that the tarray destroyed so much of the avenue. The route had saved them more than half a day. It might be profitable to explore the sink and chart if for future use. It was certainly worth considering—later. Preferably, he decided firmly, filing the idea away, while in a state of intoxication in a pleasant tavinn garden under a clear, more benevolent sky. ●



June 9-11, 1972. PULPCON I. At the Colony Motor Hotel, 7730 Bonhomme, Clayton, Missouri. Registration: $4.00 in advance, $6.00 at the door. For information: Pulpcon, Box 15853, Overland Branch, St. Louis, Missouri 63114.

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June 9-11, 1972. TRI-CLAVE. At Broadway Motel, U.S. Route 23, Johnson City, Tennessee. Guest-of-Honor: Keith Laumer. For information: Len Collins, Route 4, Box 148, Church Hill, Tennessee 37642.

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June 16-18, 1972. MID-AMERICA-CON. Guest-of-Honor: Philip José Farmer. Membership: $4.00 in advance, $5.00 at the door. For information: KaCSFFS, P.O. Box 6934, Kansas City, Missouri 64130.

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June 30-July 4, 1972. WESTERCON XXV. At the Edgewater Hyatt House, 6400 E. Pacific Coast Highway, Long Beach, California. Guest-of-Honor: Lloyd Biggle, Jr. Advance registration: $4.00, $5.00 after June 1. For information: Westercon XXV, 14524 Filmore, Arleta, California 91331.

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July 12-16, 1972. EUROCON I: First European Science Fiction Convention with the Trieste SF Film Festival. Membership: $7.00, attending; $4.00, supporting. For information: (USA) Tony Lewis, 33 Unity Ave., Belmont, Massachusetts 02178; (CANADA) Leland Sapiro, Box 40, University Station, Regina, Saskatchewan; (AUSTRALIA) Bruce Gillespie, Box 519AA, Melbourne, Victoria 3001; (JAPAN) Takumi Shibano, 1-14-10, O-okayama, Meguro-ku, Tokyo. Convention address: Eurocon 1, Casella Postale 423, 30100, Venezia, Italy.

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August 3-6, 1972. DETROIT TRI-CON. At the Pick Fort Shelby Hotel. Registration: $4.00 in advance, $5.00 at the door. For information: Detroit Tri-Con, 9010 Westwood Avenue, Detroit, Michigan 48228.

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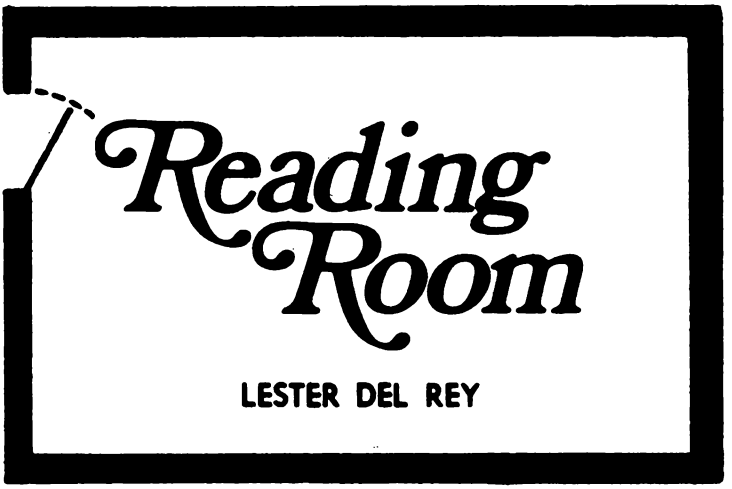
September 1-4, 1972. L. A. CON: 30th World Science Fiction Convention. At the International Hotel, 6211 West Century Blvd., Los Angeles, California 90045. Guest-of-Honor: Frederik Pohl. Fan Guests-of-Honor: Robert and Juanita Coulson. Membership: $8.00 attending, $6.00 supporting. For information: L.A. Con, P.O. Box 1, Santa Monica, California.



ULTIMATE WORLD
Hugo Gernsback

TWO PLANETS
Kurt Lasswitz

THE FABULOUS RIVERBOAT
Philip José Farmer

TIME'S LAST GIFT
Philip José Farmer

ROCKETS IN URSA MAJOR
Fred Hoyle and Geoffrey Hoyle

ORN
Piers Anthony

THERE was a time when watching the development of science fiction was a breathtaking hobby. Here was a field where growth and change were violently explosive compared to the petty progress of other literatures. Science fiction began as a distinct category in 1926. It was then a clanking mess of thinly disguised lectures on technology, almost entirely lacking in style, characterization and anything but the most rudimentary plotting. After a mere five years, however, science fiction had discovered space opera to give it scope, and new writers had lifted it nearly to the level of the general pulp writing of the time. When the field was a decade old, Stanley G. Weinbaum, Raymond Z. Gallun and Don A. Stuart had turned the bug-eyed evil monsters into alien friends and had replaced the wonders of pure gadgetry with the impact of emotional development. By 1941, an influx of new writers had introduced style and character-

ization better than could be found in most magazine fiction and science fiction had become a literature of human ideas, struggles, values and dreams.

Since then most of its development has been much slower and some has been along a side-trail that parallels the crawling mainstream. Some experimentation has improved the field, though much has been simply ipecac-frosting on the cake.

Probably such trends are inevitable, since there must be a limit to how much improvement is possible in commercial literature.

But because of the progress of the field, I was particularly interested in *Ultimate World,* by Hugo Gernsback (Walker, $5.95). Gernsback set the model for the original form of science fiction with his technological, predictive and endlessly explanatory *Ralph 124C 41+,* back in 1911, and many of the earliest stories might have been modeled on that. *Ultimate World* was written in 1958-1959, long after the major evolution of the field had been achieved. How much had the changes affected his work?

Gernsback was an alert, intelligent man of amazing ability, as his work of publishing in the electronics field proved. And, aside from the profit motive that influenced his science-fiction publishing, he genuinely loved the type of fiction he had founded. It seemed to me that if anyone could change with the times, he could.

I was wrong. The later "novel" differs greatly from the earlier one. But the changes suggest attitudes caused by age and our troubled society, not those derived from the premises of science fiction. Instead of emphasizing gadgets that might bring the millennium—gadgets Gernsback knew as well as any man could—he evidently had accepted the stand that gadgets had failed and decided in this work to try to save the world by an alien invasion and by preaching his personal theories of how man and society must be changed. For remarkable technical insight he substituted a human insight that is no more remarkable than that of any other dabbler with social theories.

The style is somewhat better than that of *Ralph,* but that is damning with the faintest praise. The plotting, development, use of anything resembling human characters, etc., are certainly no better and may be worse.

It's a bad book. This is its first publication—out of deep respect for Gernsback and consideration for all readers, I hope it's also the last publication.

A SCIENCE-FICTION novel that dates back to 1897 must set some kind of record for a first publication in English. To add to the novelty, the book is brought out by Southern University Press. Science fiction obviously is attracting serious academic consideration now—provided it is ancient enough for the professional students of the genre to have mulled it over and reached some kind of decision on it.

The title of the work is *Two Planets*. By Kurt Lasswitz, it is a novel that had a strong influence on the members of the German Rocket Society. To some extent it may have accelerated the beginning of the space program. The price is high—$10.00 for less than 400 pages of the original novel—but probably within the reach of enough completist collectors and libraries to be acceptable. In fact, if this really were a full translation of Lasswitz's two-volume work the rather high price certainly would be justified.

Unfortunately, this is not a full translation of *Auf zwei Planeten*. Around 1948, Erich Lasswitz made an abridgement of his father's work. Now, the curtailed version has been used for the translation by Hans Rudnick, with some additions from the original—wherever the translator decided the material was "pertinent to today's achievements —" which means that the reader has no way of checking it for errors in predictions or science, or of looking back to find developments in our future that were pertinent or wrong in the book.

The writing in the original seemed fairly good. That may be because the German language seldom reads as easily and quickly as English or because I was much less critical when the book was lent to me in 1934. The English version seems duller—the stilted prose makes the preachiness stand out more strongly. I suspect this is due to a somewhat too close translation if not to a lack of literary fluency on the part of the translator.

Still, despite almost 75 years of scientific advances, the plot is still reasonably plausible. And even though it is far more a morality novel—or a philosophical one—the search for Utopia does not keep it from being far better in its plotting and development than much current writing. It has a good basic situation—men discover that the Martians have a base on Earth, after which the Martians slowly take over Earth, initially with the kindest motives. But power corrupts and Earth has to fight Mars before establishing a modus vivendi at the end. Some of the political

scenes are badly marred by extreme anti-British prejudice, a trend common in German fiction after Disraeli's quenching of some of Bismark's ambitions.

If you can stand the price you might find the book fascinating—reading it is like traveling through time to learn the attitudes of the past.

However, I cannot avoid thinking that the present version shows a marked lack of judgment on the part of the translator and publisher. Instead of being Lasswitz, this is the bowdlerization of his book—a cropped 1948 book that has now been stuffed with odd bits to make it fit 1971. That is bad scholarship. It is unfair to readers who might want to possess the original in English—and grossly unfair to Lasswitz, who can stand—or fall—on his own.

NOTHING can be proved about the development of science fiction from only two books, of course. If anything, the two examples seem simply to indicate that good work is more a matter of the caliber of the writers interested in the field than of the time in which they write. If so, perhaps we should pay more attention to the twists and turnings of interest and the evolution in the talents of our authors.

One of the most interesting cases in this respect is Philip José Farmer. In almost a quarter of a century, he has tackled more different types and levels of science fiction than anyone else I can remember. He has been a master of the fresh idea, the straight adventure and the utterly wacky—but convincing. He has ridden a host of hobbies in his work. And as the years have gone by, he has become one of our most prolific authors. Like most of us, he has had a few books that were less than successes, but in general his work has scored well.

His second novel in the "Riverworld" series is now in print. *The Fabulous Riverboat* (Putnam, $5.95), originally serialized in *IF*, has been expanded into a longer novel.

This time we are following Mark Twain, revived in company with all people who have died on Earth. On a strange planet, where all life clings to the banks of a river that winds for millions of miles, he has gone back to his old interest, the river steamer. The story line deals with Mark Twain's building of a riverboat that will go down the river to find the beings who are responsible for Riverworld and for humanity's resurrection.

Less attention is paid to those beings in this volume than in the

first of the series. But in some ways this is a stronger novel. Twain's efforts before he achieves his boat, the politics that cannot be avoided, the societies and cultures that have developed along the river give depth to the story—the triumphs and defeats are marvelously real. The events in the book have an inevitablity—yet it is a delight to discover each happening as Farmer tells it.

Like the previous Riverworld book, this is a major piece of fiction. The next novel in the series will bring Burton and Twain together in a search down the river. I look forward to it.

The latest of Farmer's works to be published is wildly different. This is Farmer pursuing one of his private delights to its ultimate end. He has been busily working to prove the reality of a number of supposedly fictitious—and fabulous—characters and to trace their lives beyond the limits of the fiction in which they were involved.

Time's Last Gift, by Philip José Farmer (Ballantine, 95¢), is superficially a time-travel story dealing with the distant past and our primitive ancestors. But in reality, it's a what-ever-became-of . . .

After a number of failures at time travel a final attempt is made. But now the crew includes a mystery member who seems to have bought and forced his way in. Yet, when the time barrel lands thousands of years in the past the rest of the crew is dismayed to find that he not only assumes leadership but that they let him do so. Gribardsun also seems quick to assume practical leadership of the primitives they meet and his ability to survive as they do is remarkable.

There is also an odd romance and a fresh handling of the time paradox—but enough. Best if you figure things out for yourself. It's part of the fun. In fact, the whole book is fun.

I have only one quibble with Farmer. No, Phil, you can't get rid of Gribardsun that way. Sure, the first time the similarity prevented the time barrel's going back to where he had been. But cells replace themselves—never completely in our short lives, of course, but continually. Over the course of millennia, this would mean that no molecule of his body was the same at the beginning of his trip. There would be no conflict—no two things appearing at the same time. Gribardsun would go on, perhaps out to the stars, perhaps forever.

And that's a quibble readers will have to buy the book to understand.

FRED HOYLE is another writer who has always fas-

cinated me. He's an honest-to-God scientist of the top echelon, whom no one should expect to write about anything other than abstract mathematics. Every time I read of some major new theory in stellar formation or behavior, or about a postulate regarding the nature of the universe, Fred Hoyle seems to be given credit for much of the mathematical theory behind it. He's familiar with it long before Isaac Asimov writes a book about it—which is known as being a pioneer.

When he wrote a book of science fiction, I bought it only out of curiosity. I'd seen other attempts by top-flight scientists to do novels and I had grave doubts. But *The Black Cloud* was a superb piece of science fiction. It had the quietly effective style of a good English novelist and might have been the mature work of a top-flight writer. Then he did several other books that proved his ability.

But now we have *Rockets in Ursa Major,* by Fred Hoyle and Geoffrey Hoyle (Fawcett, 75¢). Okay, it carries a bit of warning. Geoffrey is Fred Hoyle's son, working in television, and the novel is "based on the play of that title by Fred Hoyle." The credit line suggested this was a reworked television thing. But Hoyle had done other television work and had converted it into a good suspense book.

Not this time. The basic gimmick isn't too bad. Earth has sent ships to the stars and they have simply vanished. Now, much too late, one comes back—but there is no crew and a message scrawled inside warns that if this ship returns mankind will be in deadly peril.

People have to find out what the peril is. But no, don't worry, gentle reader. Comes a ship with aliens (human enough to carry on romance with Earthmen) who tell all. They are good guys. Out there are bad guys who want to subjugate Earth. But the good guys will save us all. And from there on —ho-hum. You've seen it all before, but much better. Big battles in space where the hero (Earthman) must show his value by fixing a short in the antenna. He fails, which is the mark of his heroism. The battles are pretty bad, though they may be the best thing in the book.

The shock really comes from the writing. From his past performance we can take it for granted that Fred Hoyle writes damned well. But this material is sad-sack writing made worse by an attempt to give it emotional punch by sticking an adverb after every verb. Con-

sider: Hero had just told the ship commander that since the radio won't work to identify the ship, it will have to land through a barrage of almost certainly deadly missiles. He finishes thus: " 'Yes,' I said *laughing*. 'It's not your trip.' " Ha-ha. If it is a simple statement someone makes it slyly. If a character is worried about danger, he/she says it enthusiastically. When all else fails, they say it to each other aloud. Sensible, that.

I finished the book gagging.

On a more pleasant note, I turn to *Orn,* by Piers Anthony (Avon, 75¢). This is somewhat of a sequel to *Omnivore*—the same aliens are present, along with some of the characters of the earlier book. But the new novel can stand on its own and in many ways it is a better book.

The basic situation is that a small crew is sent back into either the past or an alternate world similar to Earth but more primitive. There's a trio—two men and a girl, with a fairly complicated and interesting problem laid out for her —she must resolve the conflict between her emotional and her intellectual responses to the two men. The real difficulty involving all three seems to be that they cannot be sure whether the locus of action *is* Earth of the past or a good facsimile. They have to determine the answer to gain any hope of survival.

Whichever it is—it's a world in upheaval and the trio is caught in the savagery of this. The characters also discover dinosaurs during a period in evolution when Earth's dinosaurs must have been extinct —or must they?

There are some good descriptions of the behavior of the dinosaurs, too. Anthony has obviously done his homework here. He has avoided the usual mistaken clichés about the ancient saurians. A highlight of the book is a duel between a scientist and a tyrannosaurus. The man loses his weapon early in the proceedings and it is man against saurian as nature made them. A good scene honestly resolved.

There's also some fine work on the girl's brave, warm, and somehow pitiful attempt to save the egg of a strange bird. The cooperation between bird and human is told effectively and makes a gripping and effective part of the story.

But the real interest of the book centers on Orn, the odd bird whose story this is. He represents a strange byroad of evolution, a race that developed racial memory in place of intelligence.

I found this the most enjoyable book by Anthony I've yet read. ●

Blind—yet she could see him across the light-years!

SILVER TO BRONZE—OVER

J. W. SCHUTZ

I

THERE was an occasional odd clicking noise in his oxygen mask. Nothing serious, perhaps, but to a planetary surface scout any anomaly in the functioning of equipment had to be disquieting. The masks were not supposed to fail. Still, Bronson Bell saw no cause for actual worry. While the atmosphere of Aldebaran IV was deficient in oxygen, its density and the bitter cold of the mountains in late afternoon made it seem normal enough, and if the mask failed

this "air" could be breathed. At least for a time.

More of a threat was the fact that he did not have the force pistol with him. If he met something too large for the one-shot specimen gun he would be in real trouble without the force pistol. But since it was one of the few pieces of equipment that was really heavy —and its battery and cable would have taken up too much weight and space in the specimen cart— he had deliberately left it at base camp. After all, he had been here three months without encountering any animal larger than a lapdog. Why sweat over a dinosaur-swatter, then? A Buck Rogers type blaster, if such a thing existed, yes. A quarter of a ton of bulky, rarely used hardware, no.

Bell—called "Bronze" by the few who could bear to look upon his outrageous ugliness—swept his gaze over the surrounding peaks, jagged and furred with deep-green alien vegetation. The terrain sloped sharply to the west, where his base camp lay. Even without supplementary oxygen, surely the return would be manageable. Tough, maybe, but he had handled worse. He tried to distract himself from the clicking noise by impressing the scenery on his memory for later description to Sylvia Chayams. He smiled and glanced at his watch. In fifty-two and a quarter hours he would hear her call on the transwave and would make his formal report. It would do no harm if the report were vivid as well as formal for the benefit of his beautiful blind date—actually blind, poor lovely.

Sylvia's image faded from his mind as an animal hardly as large as a mouse hopped along the ground a dozen meters ahead, sporting a ridiculously long tail and a relatively oversized chest. Bronze studied it a moment, chose a tiny hypodart from the selection in his belt pouch, dropped it into the breech of the fragile specimen rifle and brought the mouseling down with a practiced snap shot. The creature chittered angrily, plucked at the tiny needle in its side, then slumped helplessly to the ground. Bronze picked it up carefully with gloved fingers, and his lumpy face behind the breathing mask broke into a smile as he noted the comically worried eyes of the little beast.

"Take it easy, little fella," he said. "You'll wake up tomorrow without even a hangover."

As the anesthetic took effect, the little animal's eyes closed. The big gentle-handed man eased the limp body into a plastic cylinder of the right size, carefully tucked in the disproportionately long

tail, clicked home the tube's perforated lid.

As he moved back up the trail to his light two-wheeled specimen cart, Bronze hummed a snatch of dance music in deep, resonant tones that set his oxygen mask vibrating. The tune was one that had been played by the orchestra in Houston three months ago and fifty-three light-years away. For a moment Sylvia Chayams was again in his arms.

BRONZE thought of that dance frequently. It was not often that any girl was willing to be seen with him in public—and Sylvia was impossibly beautiful. Long slender legs, firm but womanly hips, a trim waist, high and perfectly formed breasts, a cascade of warm brown hair, a cameo face adorned by huge blue eyes with abundant dark lashes set under straight brows. What a pity those lovely eyes were blind.

But if she were able to see she would never have looked at him. His broken lumpy features were overlaid with puckered, indelibly blackened scars—mementoes of a quarry explosion.

That night of dinner and dancing had been both a delight and a torture. Delight because Sylvia, radiant, had moved in his arms like a strain of the music itself. Torture because of his own feelings. He had wanted desperately to tell her how beautiful she was, to reach across the table and hold her fingers in his blunt hard hand. But such things were among the few Bronson Bell would not dare. Not with any girl. Least of all Sylvia. He could not take advantage of her blindness, knowing that he was the ugliest man she might ever meet.

His conversation had been confined to descriptions of the Starfire Club and the people in it. At that he had been fluent and she had listened eagerly. When he had wanted to say anything more personal—or when she had asked him about himself—his words had become short and gruff. When he had said goodbye to her at the door of her apartment she had apologized.

"I hope it wasn't too tiresome—taking out a sightless girl?"

"That doesn't matter."

She had slipped away from him then. The kiss he had almost offered had become impossible.

She had replied with her first trace of coolness, "It matters a great deal to me."

He had been able to think of nothing at all to say to that, although he had thought of a thousand things since. But now he was hearing her voice every

four days on the transwave, fifty-three light-years away at her Explorers' Monitor and Control Console in Houston, Texas.

SYLVIA, despite her handicap, held one of the most responsible positions in the multibillion-dollar program for the biological exploration of the cosmos. In addition to a mind that had command of a half-dozen disciplines of twenty-second century science, her miraculously acute hearing was a priceless asset in dealing with the whisperings of scouts' reports amid the thunders of millions of continuously exploding stars—and her slender fingers could play the console's myraid controls with unmatched deftness and surety. For the hundredth time Bronze wondered if Sylvia had been assigned to him or had deliberately chosen to monitor his exploration mission among the dozen or so that any one operative could carry. However it might be, he was grateful for the luck that brought him—precisely every fourth day at local sunset—Sylvia's clear voice saying, "Houston Control calling Bell, Aldebaran IV. Chayams here. Come in, Bell." And then less formally, "Hello, Bronze. Silver here. How was it?"

THE going was tricky here, requiring lowering the cart down a jumble of rocks and steep bluffs, one or two of which were fifteen or twenty meters high. Inching over the lip of one of these after letting the cart down on a line, he almost put his hand on the animal.

Although obviously a worm, it was somewhat larger than the mouselike specimen he had shot with a dart. He had never seen anything like it before. It moved sluggishly as worms do, and its body was covered with a gray pitted shag like the bleached bark of an old birch. He gathered it up in a gloved hand and prepared to continue his downward climb when the thing elongated its body and writhed violently. The head end struck his wrist where his exertions had pulled an inch of sleeve out of his gauntlet and he felt a pinprick on the bared flesh. As he stuffed the worm into a zippered pocket and reached with his free hand for an antiseptic swab he carried in his shirt—the planet suddenly lurched and swirled like smoke about him.

Hurriedly he flung himself down on a narrow ledge, his feet hanging over a ten-meter drop. The ground was tilting and he suddenly found himself clinging to a ceiling of stones, gazing down a long drop to an empty sky. Illogically he grasped knobs of rock at his sides

and held them with a force that made his fingers ache. He closed his eyes and waited for the effect of the venom to wear off. When he felt the planet tip to horizontal again he opened his eyes carefully, only to find that the colors of everything he saw were reversed. The dark-green forests had become wine-red, the sky had taken on a yellow-orange tinge and his khaki shirt and trousers were a nauseating dirty green. He waited again for a while, then carefully completed his climb down the escarpment to stand, panting, beside his laden specimen cart.

The exertion of the descent apparently had speeded his return to normal. Surfaces were resuming their customary hues and the dizziness had passed. He counted his pulse and found it slightly slowed. He gave himself a mild stimulant by injection and examined the bitten spot on his wrist.

That Bronze-and-Siver bit had come about when they had exchanged names during the date. Bronze grinned at it now and regarded his cart, too heavily loaded for its fragile wheels and flimsy body. Every item an explorer scout used had to save the ultimate gram of weight since it had to be brought down out of orbit from the roving mother ship, *Darwin*—and returned to the *Darwin* eventually—by rockets burning precious reaction mass. The ship's trans-light drive was much too massive and too expensively triggered with tritium to use for landing scouts. For that matter, even the *Darwin* could not afford to carry the echo-modulated transwave communicator—fueled at astronomical cost by the same tritium—that punched the standing transwave across the light-years. Science had indeed broken the light-speed barrier, but nothing, apparently, could break the economic laws that demanded a huge expenditure of money for a corresponding expenditure of energy. Money and energy were two names for the same thing—hence only one lone scout to millions of square kilometers of planetary surface and communications only through Houston.

Bronze checked his specimens. These same economic laws made ridiculous any attempt at interstellar mining, commerce or even transport of objects. Only knowledge, pouring back to Earth along the standing transwave, was worth the cost. And the most valuable knowledge was locked in the cells of alien protoplasm which, like its counterparts on Earth, was capable of infinite variation in response to challenges

of alien environment. In the skin, glands or intestines of the long-tailed mouse-thing he had just captured might lie the cure for cancer, an antidote for heroin addiction, a longevity drug—or something that might restore sight to Sylvia's eyes.

HE TESTED the bindings on the cart and stood for a moment with the shafts in his hands, drinking in the beauty of the rugged scenery around him. If he could not restore her sight he could at least make the scene live for her—describe the line of midnight blue at the horizon, the smell of unfamiliar resins from the nearly black foliage of the trees, the chirps, whistles and deep-toned buzzings of the small wildlife, the touch of icy crystal water from melting snows untouched by the soot of chimneys, the fragrance of carpets of tiny blood-red flowers and even the tang of the berries and bitter roots he had cautiously nibbled.

Soon he would have to prepare and eat his own prosaic evening meal and he wanted to be at Camp One by nightfall. The following day he would have an easy trek from Camp One to base, which would leave him time to arrange his specimens for identification, classification and, if new in any respect, storage in the memory banks of the giant computers at Houston Control. His portable micro-bio analyzer would automatically transmit the structure of the most complex molecules to Houston for later study and attempts at synthesis. Only those substances that could not readily be synthesized would call for the transport aboard the *Darwin* of the plant or animal that contained them. The other specimens would be disposed of or set free again.

He checked his rough map for landmarks and started down the flank of the mountain between the shafts of his cart, humming his snatch of dance music and planning things to say to Sylvia, knowing that they would not be said as planned. Seemingly nothing could prevent his being gauche when the talk approached the banalities normal between a man and a woman.

His humming stopped as the valve supplying a trickle of supplementary oxygen to his face mask again clicked and this time cut off the flow for an instant. He took off the mask and examined the valve while breathing the thin perfume of the ambient atmosphere. Nothing was obviously wrong. At the base he had tools to take the valve apart, but base camp was twelve hours' march

from here. If the valve failed entirely he would be reduced to a crawl. He resumed the mask and went on, the tune temporarily forgotten in favor of calculations of the time required to reach base by his reporting hour if he were obliged to cut his pace. If necessary he could travel all night, since he was not particularly tired. That would certainly be better than risking the automatic rescue mission by the *Darwin* that would follow his failure to answer Sylvia's call. The reaction of Admiral Beane to such an astronomically expensive waste would not bear thinking about.

He was three hundred meters above Camp One, only three kilometers by trail from it and the oxygen valve giving no trouble, when he found the worm.

The place bore a small circle of pinpricks surrounded by a red patch of irritated skin. He sucked at the punctures until a bit of blood oozed from them, spat on the ground, swabbed the wound, disinfected it and applied a circlet of sterile plaster. Then, with a long-handled wire clamp, he fished the worm carefully out of the zippered pocket and looked at it wryly.

"I think you're going to have something interesting for the computers, my friend," he told it, pushing it into a cylinder of appropriate size and stowing it beside the recently captured mouse.

II

HE PICKED up the shafts of the cart and started toward a narrow ravine that crossed the plain ahead of him. By the time he reached it he had all but forgotten the bitten wrist. Humming his dance melody, he lowered the cart to the bottom of the steep-sided declivity, scrambled down after it and tossed the coil of line attached to the cart up the opposite slope. He began to climb after the line and had nearly reached the top when he was in blackness and falling. When sight and sensation returned he was sprawled an arm's length from his cart. His left ankle was sending frantic pain signals—alternate stabs of ice and fire.

He unlaced the boot and pulled down the heavy sock to examine the injury. The ankle had already begun to swell and was suffusing with a brownish tinge of blood.

Man, that looks nasty, he thought. *Going to be rough making the base in time to call in.*

He wriggled his toes cautiously, vaguely remembering that if he could do so the ankle was not broken. He found he could move

the toes, but the cost in pain discouraged further testing. He laced the boot again, pulling the laces as tight as he dared. It wouldn't do to cut off the circulation, but the ankle must be immobilized. When he tried to stand he almost fell again. It took some further bracing of the boot with straps and a short-handled prospecting hammer before he was able to hobble. Then, to his dismay, he found that it would be impossible for him to haul the specimen cart out of the ravine.

The bottom of the ravine was growing dark by the time he had made a cache of the vegetable specimens, improvised a makeshift knapsack and fashioned crutches from the shafts of the cart. He released the animal specimens, most of which scuttled off among the stones and brush. Only the long-tailed mouse seemed to have adopted its captor and showed a tendency to follow Bronze about. The big man leaned down to the creature and with gentle hands pointed its nose into some tall grass and tapped it on its little rump with a forefinger.

"Run off, Mickey—or Minnie, as the case may be. I'm not going to have time to play with you," he said.

As the tiny creature took refuge in the clump of grass, Bronze shouldered his pack, slung the specimen rifle over it and started painfully up the side of the miniature valley. Halfway to the top the laboring valve of his breather mask gave one sharp, final click and refused to supply oxygen.

SYLVIA CHAYAMS sat at the console of her transwave communicator, her padded earphones not yet in place. Her slender fingers drifted in a ghostly dance over the dials and switches. A lilting dance tune went through her mind as she worked, and her fingers moved in unconscious rhythm with the music. What a wonderful evening that had been with the big spaceman, Bronze Bell. His calling her Silver had been a delightful touch, too. If she married him people would probably call her Silver Bell.

Her mind shied away from the thought. This was going too fast! Still, the only flaw in the precious hours she had spent with him had come at the end when she had so clumsily mentioned her blindness. There had been an element of self-defense in her doing so and she hated herself for it. She had known from the balance of his body and the slight tenseness of the fingers that held her hand that he had been about to kiss her and she had blurted her stupid remark to keep

him from doing so. She wished fervently now that she had accepted the kiss. She was sure, somehow, that Bronze would not have been like the others, the succession of men who had dated her, telling her monotonously that she was beautiful, then groping with thick fingers at the buttons of her blouse or the zipper of her skirt. Like the slob who had insisted on taking her to a movie—a *movie*, of all things!—and, with his arm around her shoulders and one hand fingering the under-curve of her breast, had handled himself with the other. He had thought that because she was blind she could not tell what he was doing. Ugh!

Bronze was not like that. For the first time she had felt like a normal girl on a normal date. His hand on her back as they danced had felt cool and firm. Her head had fitted so comfortably in the hollow between his neck and shoulder as they moved about the floor and, though the floor had been crowded, he had protected her so easily and deftly that they had never come into contact with any of the other dancing couples.

There were other things about him, too. What other man she had ever met had known how to make things vivid in her darkness? What was it he had said at last transwave contact, describing a velvet-petaled flower fifty-three lights from Houston?

. . . a red like the taste of burnt orange peel . . .

Sylvia was smiling to herself as Kate Hoggins clumped by on her canes on the way to her own console.

"Hi, Sylvia. Dreaming about a spacer? Who's your contact this shift? Bell?"

Sylvia's smile became a friendly grin. Kate always asked questions in groups of three.

"Yes to your first question," she said. "I was dreaming—sort of. About the contact, it's Hashimoto's report from Aldebaran II tonight. Bell's not due to report in until—" Sylvia's fingers strayed briefly to a clock set in her console and touched the exposed hands—"twenty-three hours, thirteen minutes from now."

"Got him timed to the minute, hey? A little bird told me Bell took you to the Starfire Club the last time he was on leave, right? Did you have a good time?"

"Wonderful."

"You like to dance, don't you? Did you dance? How was he as a dancer?" Kate's voice changed to a wistful note. "I'd give my soul to be able to dance again!"

Sylvia frowned. Kate was inviting a break in their unvoiced rule against mutual commiseration

and admission of handicaps.

"At least you can enjoy a show with your date and see what he looks like."

"Yeah. There is that." Kate dropped her hand lightly on Sylvia's shoulder, then hobbled to a place in the line of consoles.

Sylvia smiled after her. Like most blind persons she did not like to be touched, but she had come to expect—and not not mind—Kate's friendly fingers.

Sylvia checked the clock again, pulled the phones over her ears, delicately reset a dial and began her evening's stint.

"Houston Control calling Hashimoto, Aldebaran II. Chayams here. Houston Control calling Hashimoto, Aldebaran II. Chayams here. Come in, Hash. Over."

BRONZE struggled to the lip of the ravine, his breather mask dangling uselessly on his chest. The shortage of oxygen, the exertion of the climb, the agony of the twisted ankle—these combined to pour trickles of sweat down his forehead and into his eyes. He dashed away perspiration with a forefinger and sourly looked at the oxygen mask. The fall had probably damaged it beyond repair. He put it to his face and inhaled strongly. Nothing came from it but a slight odor of plastic and oil. He tapped the valve lightly. Something cracked and the canister exhausted its contents in one hissing burst, leaving a thin frost on the inside of the mask.

That was it. No oxygen.

How long could a man live on this planet without supplementary oxygen? Quite a while if he didn't exert himself. Not very long if he did. The planet's animals were all oxygen breathers. But they had disproportionately large lungs and their respiration rate was more rapid than that of Earthly animals. He would have to increase his own breathing rate. And rest more frequently than even his damaged ankle demanded. Instead of ten or twelve hours it would take him all day and all night to make base camp. He checked his watch and the lowering sun and resumed his slow, painful progress.

Two hours later he estimated that he had made only two-and-a-half kilometers. The local sun was already touching the horizon. The pain in his ankle had settled to an enormous, hammering throb. He paused on a slight rise, panting rapidly and heavily, and looked about him. The reason might have been the advancing twilight, but the landmarks looked oddly unfamiliar. He set down his pack and balanced on one crutch while he

rummaged for his map. It was not in the pack.

Neither was his compass. He had probably left both in the specimen cart back in the ravine. The compass was the lesser loss as the planet's magnetic field was weak and variable, but the lack of his map was serious. He looked about him carefully, trying to recognize some landmark as it might appear from an unfamiliar angle. The sun's disk was half below the horizon now and the long, brownish shadows emphasized the irregularities of the terrain. Directly ahead loomed a jumble of rocks, a formation he could not recall from the outward trip. His damaged ankle would force him to skirt that obstacle. But should he go north of it—or south? No sense bothering with Camp One now. He had no time to rest. All he could be sure of was that base camp lay generally westward. Perhaps the landmarks would become more easily recognizable as he approached it.

With the sun below the horizon it would be difficult for him to be sure of continued progress westward, however, and this planet had no moon. On the plus side was the fact that fifty-three light-years made little difference in the familiar constellations. But he would have to remember that because of the planet's orientation, Formalhaut was its pole star. Suddenly the effort to recall which of the constellations, therefore, would rise east and set west or vice versa made his head whirl. Painfully he reshouldered his pack and started toward the fading glow of sunset, angling south of the jumble of rock ahead. As he did so a deep, coughing rumble like the grunt of a hunting lion came faintly to his ears.

Bronze stood motionless for a moment, then resolutely reminded himself that a loud or deep-toned noise did not necessarily mean a large animal. There were Louisiana bullfrogs whose deep-throated roar could be heard for miles. He wondered if he could describe to Silver what he had just heard in terms of bullfrogs and decided that he could not. There it was again! The rumbling sound tensed the muscles of his back and sent cold thrills racing along his nerves. It did not help to remind himself that so far no large predators had been found on the planet.

He unslung his rifle and, while some dim light remained, loaded it with the most powerful anesthetic needle he could find in his stock. If the animal turned out to be as large and hostile as it sounded he might never make it to base camp

at all. Thinking of base camp and of Silver's low, sweet voice detaching itself from the crackling thunder of the stars, he strained his eyes to check the remaining hours until report time. The alien beast grunted again, closer, and Bronze noted that a light breeze was blowing in his direction from the rocks. Panting his laboring lungs full of the unsatisfying air, he resumed his tottering march westward.

SYLVIA CHAYAMS removed her headset and sat back in her chair, gently massaging the muscles of her neck. She replayed the last few inches of Hashimoto's tape to make sure of the quality and recording level. But she was thinking not of Hash and his amusing, deliberately Japanese-English descriptions of the finds of his trip, but of Bronze Bell. She touched the dial of her console clock. Sixteen hours and four minutes and she would begin calling Bronze.

Her shift was over. She checked the almost inaudible hum of the standing transwave, which was never allowed to die, and shut down the rest of her board. She would go to her apartment, bathe, dial her favorite meal from the autochef. Thank heaven for that warm, kitchen-smelling machine which made it possible for her to eat at home without having someone in to prepare and serve her meals! At the Starfire Club, Bronze had not made the usual mistake of handing her the menu or attempting to read it to her. He had confidently ordered for her instead and his choice had been marvelous. Bland, aromatic *quenelles* in a thick sauce. Spicy bits of toast buttered with beef marrow that one was expected to eat with the fingers. Nothing that had to be cut with knife and fork or pursued about a slippery plate. A delicious dessert of *chirimoya* ice cream. She had eaten with the same assurance as the sighted diners around her while listening to his deep velvety voice commenting on the club and the other diners without seeming to describe them, but giving her, nevertheless, a sharp picture of the scene. Some of the women at Control had commented in her hearing on Bell's astonishing ugliness, but this big, gentle and thoughtful man would never be ugly to her. God protect him and bring him home safe from his strange and dangerous job.

Suddenly she had a vision such as only the blind can know. A huge, loathsome beast, rough-furred, long-fanged, with enormous eyes. Its forelimbs were armed with foot-long, curving talons and it scur-

ried through a dim purple light with terrifying and sure-footed agility. Then the image vanished.

Sylvia shook herself lightly, retrieved her purse from a drawer and left the Center, softly and somewhat tremulously humming a snatch of dance tune as though it had some mystic but uncertain power to protect Bronze.

III

THE beast was angling outward from the jumble of rocks on Bronze's left in a path evidently intended to intercept him. He could hear its deep booming grunts coming closer. Night had fallen, but the atmospheric glow and the light of the stars made it possible for him to see obstacles in his path and outlined the hill against the faintly luminous horizon. What was the size of the animal? It was obviously stalking him, so it must be large enough to have confidence in its own powers. Ignoring the pain, which was now lancing up his leg and left side, Bronze forced a slight increase in his hobbling pace.

His stalker had miscalculated the interception point—Bronze heard the beast some hundred meters behind him, as well as he could judge the distance. He wished he could hold the specimen rifle in his hands, but he could not manage both rifle and crutches. Still more he wished that he could see the thing—form some idea of its size and appearance. It might be some harmless herbivore following him out of simple animal curiosity. His imagination insisted, however, that the thing was a predator and considered him prey.

He remembered that in rummaging for the forgotten map he had found a couple of firelighters in his pack. One of these might provide enough light as it burned to make the creature visible if it came closer—perhaps enough to give him a reliable shot at it with the rifle. He took the time to find and hand one of the firelighters at his belt, then resumed his march, resolved not to attempt a showdown with the beast unless and until it came too close for safety.

The exertion of hoisting the pack to his back increased his already frantic breathing rate and for a moment he felt a return of the dizziness that had preceded his tumble in the ravine. The sensation passed quickly but left him uncertain of his direction. The stars did not look as they had a minute ago—or had it been an hour? Or two? Was that Scorpio off there to the right? And if so, what was it doing there? He puzzled over it,

but the problem seemed insoluble. He was about to shrug it off—then brought himself up short.

"Wait a sec, Bronze, my friend," he told himself out loud. "You can't just laugh this off. This is serious. Anosh—anoxia—that's what's making you so offhand about this. Take a deep breath."

He took a dozen in rapid succession, straining his lungs to their utmost capacity. Then he stood still and studied the stars until he was correctly oriented again.

He heard the coughing roar close behind him. The lumbering stalker had come perceptibly nearer. Bronze hurried on. The muscles of his chest and abdomen were aching from the unaccustomed strain of rapid and continued deep breathing. And still he was not getting enough oxygen. If only he could keep ahead of the brute until dawn, being a nocturnal hunter maybe it would abandon the chase.

He almost made it to the first glow of daylight, but an incautious swing of his improvised crutches tangled in some weeds and Bronze came crashing to the ground in a blaze of agony.

Behind him the hunter increased its pace.

BRONZE could actually hear the animal's padded footfalls before he found the firelighter at his belt and ignited it. The sight of the beast paralyzed him for a moment, then he grabbed the rifle and swung it in the thing's direction.

Larger than a terrestrial buffalo, it was feline in general appearance. A shaggy mane about the shoulders increased massive aspect of a huge chest and upper body. The face was hideously ugly. *Worse than my own,* Bronze thought fleetingly.

He raised the rifle and in the uncertain light of the sputtering flare drew a bead on the neck—fired. As he did so the beast lowered its head, began a charge. The dart lodged in its wet, tender-looking muzzle. It emitted such a shriek of pain and fury that Bronze cowered. The creature halted, pawed ineffectually at the dart, looked straight into its tormentor's eyes across the dying flare. Then it began a deliberate advance much more menacing than any wild charge.

With fingers made stiff and clumsy by hours of gripping the improvised crutches, Bronze attempted to reload. The needle cracked in the chamber and the gun was hopelessly jammed. Meanwhile the beast continued to move steadily forward.

Balanced on one leg, Bronze

raised the rifle by the barrel for a last-ditch and certainly ineffectual defense. The monster was within leaping distance when the anesthetic took partial effect. It collapsed.

Bronze looked down at it.

It was panting hugely and its eyes still followed his every movement. The semi-paralysis obviously would not last long. The beast was much too big to be felled for long by just one of Bronze's charges. He looked about, the sweat cooling on his body. Not a stone or stick in sight—nothing he could use to finish the thing off. The rifle and the crutches were too light for the job.

"Something tells me, my pretty," Bronze said aloud, "that I'd better put some distance between us before that shot wears off."

He chose direction by the stars, hobbled away. The giant's clouded eyes still followed him.

SYLVIA returned on shift unaccountably tense. She had slept badly, disturbed by vague dreams of undefined disaster. Kate Hoggins' habitual pat on the shoulder made the blind girl jump nervously. She ran fingers over the board for the daily check but near the end could not remember if she had tested every switch and dial. In exasperation she checked again —and a third time to be sure. The stubby hands of her glassless clock told her she still had twenty minutes before contact with Bronze. The moments dragged interminably as she waited.

Bronze would be on time, of course. He always was. But what would she do if he were not? What if something had happened to him? She thrust that worry aside for another, less immediate. Would he call her again when he returned to Houston in six months? Probably not. One date with a blind girl was all you could expect of any man, however charitable. Meanwhile she could content herself by contact with him through the transwave twice a week. Perhaps it would be better if she didn't announce herself to his "Bronze" with that silly name of "Silver." Over the months it might come to seem embarrassingly intimate. She began her call a full minute ahead of schedule.

"Houston Control calling Bell, Aldebaran IV. Chayams here. Come in, Bell. Houston Control calling Bell, Aldebaran IV. Chayams here. Come in, Bell. Houston Control . . ."

DAYLIGHT on Aldebaran IV did not, as Bronze had hoped, discourage the giant cathing. He could see it in the dis-

tance, apparently fully recovered from the anesthetic, humping along with a determination as great as his own but not with the speed of Earth cats. Nor was it trying to hide its presence. He could hear its repeated rumbling roar. There was an angry quality to the sound. Evidently the creature was one that held a grudge. The anesthetic had given Bronze only a kilometer's start and now he was tiring. He took a moment to lighten his pack, leaving a little pile of odds and ends on the trail behind him.

When the cat came up to the discarded equipment it paused long enough to rip the stuff to shreds. During this exercise in malice Bronze gained a hundred meters and berated himself for not having dropped the things one at a time. He resumed his march, his lungs laboring painfully and his foot sending stabs of agony up his side clear to the neck with each step.

The brute behind him had cut the lead to less than five hundred meters when Bronze saw the stream. It was both a welcome and a dismaying sight. It told him roughly where he was in relation to base camp. The stream ran well south of the camp and he now knew he would have to turn north. He glanced at his watch and estimated the probable distance he had covered. Assuming that he had passed Camp One in the night, it would be necessary for him to veer northwest. He noted the angle of the sun over his shoulder and headed for the stream, looking back anxiously to see if the cat would make directly for him across the angle rather than follow his footsteps. It turned directly toward him, ignoring the scent of his steps, and before Bronze had reached the water the cat had gained a hundred meters.

Now the unpleasant part of having a river in front of him came into play. The morning was bitterly cold and Bronze was shivering in his clothes despite his exertions. From previous experience he knew that the stream came from a snowfield and would scarcely melt ice. Worse, a chilly breeze was blowing and it would multiply the effect of sodden clothing. If he could take off his shirt and trousers and somehow keep them dry during the crossing it would help—but the beast was too close. Maybe the water would stop the thing or at least slow it up. In any case, nothing was to be gained by lingering on the bank. Stretching his tortured lungs to their limit, he plunged into the green water, armpit deep.

FORDING the stream was the worst ordeal yet. Slippery

stones wrenched at his injured ankle. The cold drove the breath from his lungs and made it impossible to fill them fully again. Once he stepped into a hole and the swiftly moving water closed over his head. For a moment the idea flashed across his mind of breathing in the icy torrent and letting nature take its course, but he struggled to the surface, losing the now useless gun and one of his precious crutches in the process.

He made it across, but barely. As he struggled up the opposite bank he cursed himself for having tried to cling to his pack. It now weighed more than he could lift in his weakened state. He squirmed out of the straps and let it lie on the ground, pouring a stream of water over his leg. It hardly seemed worth the trouble to get to his feet. Suddenly he saw a vivid mental image of Sylvia Chayams. She was looking at him with disdain, as if she did not like what she saw.

"Bronze, my friend," he said to the air around him, "I don't think she'd appreciate it if you quit on her. The gal likes to dance, remember? She can't see how ugly you are—"

With infinite care he climbed to his feet, tucking the one remaining crutch under his left arm. He looked at his watch, still running.

Time? Damn, it was time to make his report. Silver's voice would be riding the transwave now. Would she give him a couple of hours' leeway before calling the starship? If he became a billion-dollar rescue case because of a lousy sprained ankle, would she ever dance with him again? Neither of them would be able to hear the music for the snickering. Meanwhile her voice was calling.

At the top of his lungs he roared an answer. An echo reached him from the other side of the stream. He looked back at the beast and grinned.

"You ugly bastard. I hope you can't swim."

The hope was quickly blasted. Already the creature was reaching its forepaws into the water, yowling angrily and inching in deeper until only its head and massive shoulders were visible. Then, with a grunt of fury, it launched itself into the current and began paddling.

It was not a good swimmer. The current began to drag it downstream. Bronze turned upstream, heading for a low rock-covered hillock some distance to the north, dragging his pack. If he could get to those boulders maybe he would find some small enough to throw yet big enough to do damage. It was a chance. Bronze left the pack on the ground near the stream and

wrenched himself toward the rocks, gasping his answers to Silver, telling her to wait—keeping time with his gasps.

Behind him, three hundred meters to the south, the cat monster climbed out of the stream, its shaggy fur clinging to its flanks. Instead of making directly for him it turned blindly upstream, sniffing for his scent. At last it turned north. When it found his pack, Bronze gained another hundred meters while the beast ripped everything to ribbons. Then it took up the trail again, inexorably.

AT HOUSTON Control Sylvia Chayams' voice was growing slightly hoarse.

"Houston Control calling Bell, Aldebaran IV, Chayams here. Come in. Houston Control . . ."

I wonder if he's hurt . . .

". . . calling Bell, Aldebaran IV. Chayams . . ."

Or dead? God, please don't let him be dead . . .

"Come in, Bell. Houston Control calling . . ."

Maybe he's just forgotten his schedule. That's what it is. He's forgotten, the overgrown idiot. I wonder if I should call the starship? No, not yet. He'd kill me if it weren't a real emergency. But, damn him, why doesn't he answer?

While the call was going out Sylvia's slim fingers were ghosting over the control panel, checking and rechecking. Everything was functioning.

"Houston Control calling Bell . . ."

A little crowd was gathering behind her, watching the panel for some external sign of Bronze's reply. No one spoke. One never spoke to a transwave operator when the phones were in place.

"Houston Control . . ."

Bronson Bell, if you've simply slept through your watch—boy, am I going to give you a piece of my mind! Let it be that, God. He's just asleep. That has to be it, the big lummox!

Houston Control calling B . . ."

CLIMBING the rocky hummock cost Bell heavily in effort. Nothing on it that he could lift or wrench loose would serve to keep the cat-beast at bay, much less cripple or kill it. But the hill had other advantages. From its summit he could see the mast of the transwave with the glittering little aluminum shack at its base.

Bronze gave a hoarse cheer and began to scramble down the other side of the hill toward base camp.

Only twenty minutes behind call time. You might make it, Bronze. In another half-hour. If the Grunting Wonder back there

doesn't make a meal of you first . . .

He was keeping quiet, but as if in reply the voice of the beast thundered from the rocks behind him. He threw himself forward and rolled down the slope.

Soon Bronze was only a hundred and fifty meters from the shack. But the great shaggy animal was again nearly within leaping distance. Bronze faced it and threw a handful of gravel. It flinched, probably remembering the dart, but stood its ground, snarling. Bronze tore off his sodden shirt and threw it down. While the brute ripped the shirt to tatters its quarry made another thirty meters. The trousers went next, torn from his body without his trying to pull them over the boots. Then his underclothing. Each time the respite was shorter, the repulsive monster closer. At last, as Bronze stood naked save for his shoes, his improvised crutch snapped in two. He flung the pieces like lances and dropped to his hands and knees, scrambling painfully over the rocky soil.

His knees bloody ribbons, his eyes fogged by a red film, his ears filled with the roaring of the pursuing beast, Bronze snatched open the door to the base shack and tumbled in.

While the beast rasped its heavy claws at the doorframe and the flimsy walls shook, Bronze turned a petcock on the shack's oxygen tank and breathed the gas into his lungs in great starved gulps.

He was instantly in a state of euphoria. Childish giggles escaped him as he switched on his transmitter and shouted, "Bell to Houston Control." Another giggle. Then: "Bronze to Silver. I love you, my Silver Bell!"

The clearest thing to come to Houston over the whispering transwave, cutting through the thunder and hiss of the exploding stars, was the giggle.

Sylvia was stunned. Bronze, the big . . . the . . . the *mess,* was not dead, not hurt, but simply unspeakably drunk!

"Love me, do you? Well then, prove it, damn it. Report."

On Alderbaran IV the shack shuddered under attack from without. Bronze wiped a bloody hand on the battery case of the force pistol and mumbled, "I'll tend to you later, kitty—" then turned to the set.

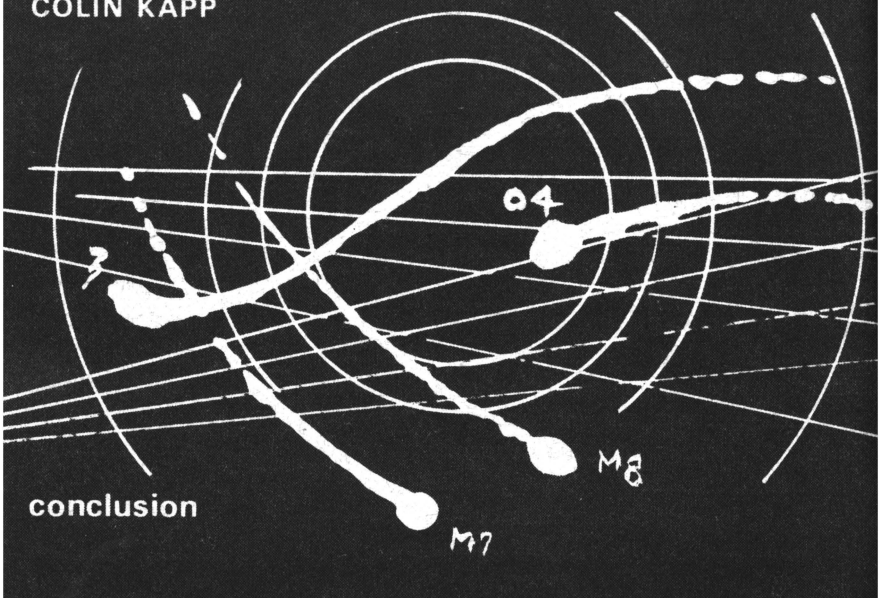
"What do you mean, prove it?" he bellowed. "I got to the goddam phone, didn't I?"

"Report," Sylvia snapped and two heavy tears rolled down her cheeks. She hated him—the big, sloppy, drunken bastard!

But her ridiculous heart was singing. ●

PATTERNS OF CHAOS

COLIN KAPP

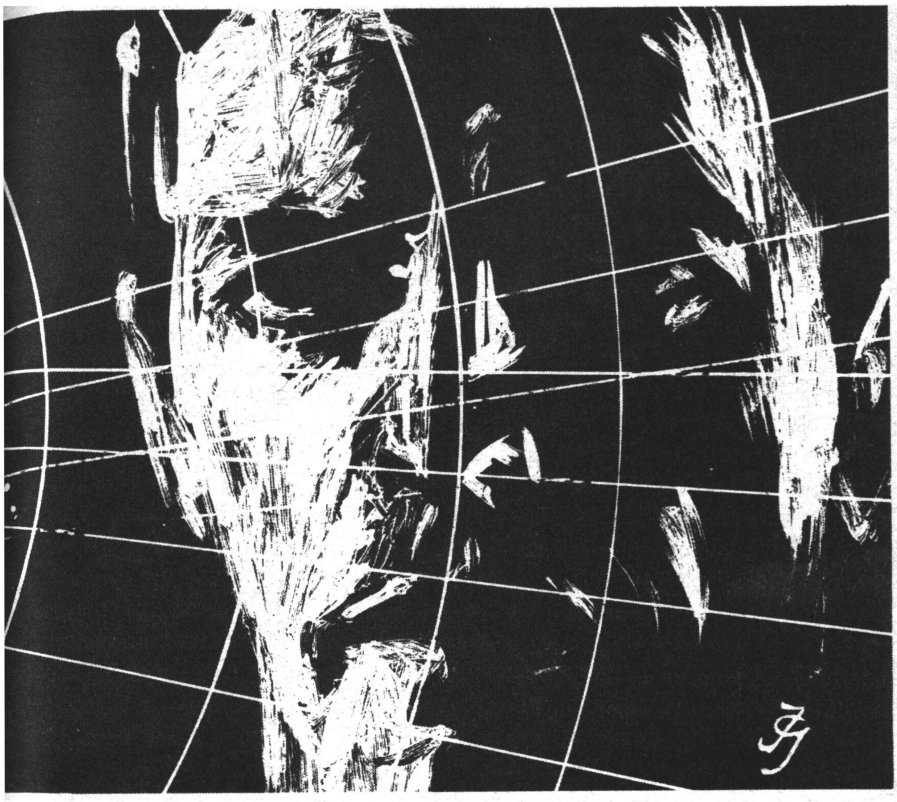


conclusion

WHAT HAS GONE BEFORE

BRON came out of a state of unconsciousness in a strange city on an unfamiliar planet, not knowing his name or identity, with holocaustic war raging around him. A voice in his head identified him as a Terran agent involved in Earth's struggle with the Destroyers, an outlaw federation of planets once colonized by Earth. The voice directed him to safety through Destroyer lines, told him he was in the city of Ashur on the planet Onaris, under Destroyer attack.

The voice belonged to a Special Assignments Group attached to the Stellar Commandos, an Earth military unit. It reached him through a minute electronic transfer link surgically implanted in his brain before he began his mission. The link not only enabled the Group to reach him at any time and see and hear through his senses,



but also gave it life and death powers over him. The voice continued to brief him. His amnesia, caused by a concussion during the Destroyer raid on Onaris, was complicated by the fact that, before starting on his mission, he had been hypno-conditioned to represent himself as a leading Onarian scientist, Syncretist ANDER HALTERN, whom the Destroyers were known to be looking for.

The voice in Bron's head was sometimes that of JAYCEE, an acid-tongued but attractive female commando; of DR. VEEDER, Group medical officer; and of GENERAL ANANIAS, its military member. Under the Group's direction Bron duly fell into the hands of the Destroyers and was taken aboard the enemy spacefleet's flagship, commanded by the Destroyers' leader CANA, who received him cordially, believing him to be Ander Haltern. Cana's

lieutenant, COLONEL MARTIN DAIQUIST, however, suspected Bron/Haltern's credentials and subjected him to a test. With the aid of the real Ander Haltern's coaching through the transfer link, Bron easily passed the test and was given restricted freedom of the ship by Cana.

As Cana's "guest" Bron/Haltern witnessed—from space—the total destruction of Onaris by a "hellburner" missile, whose arrival Cana had accurately anticipated. The event matched the Destroyers' reputation for planetary destruction—Cana, however, disclaimed all responsibility. The hellburner missiles always followed Destroyer raids and were of unknown origin, according to Cana, and this last one had undoubtedly been intended to kill Ander Haltern—it had struck Onaris at exactly the spot where the Destroyers had seized Bron/Haltern.

To prove his innocence Cana invited Bron/Haltern, as a master syncretist and expert on the "patterns of chaos"—which Cana's own scientists had used to compute the arrival of the hellburner—to check all data available on the ship. Bron/Haltern did so and also used his freedom of the ship to compute the course of Cana's fleet back to the Destroyer's baseworld —information Earth wanted and Bron transmitted to the Group via the transfer link. His activities, however, reawakened Daiquist's suspicions and he was transferred from the flagship to another vessel, the Tantalus*—a former Terran laboratory ship long since captured by the Destroyers and now part of Cana's fleet.*

Aboard the Tantalus *Bron made a startling discovery—the ship's entire instrumentation had been exactly reversed: dials read from right to left, etc. Checking back, Bron also found that the* Tantalus *had once been commanded by General Ananias, who had abandoned her and presumably her crew in space. When he confronted Ananias with the information via the transfer link the latter tried to kill him. Jaycee saved Bron's life.*

Under the coaching of the real Ander Haltern via the transfer link Bron/Haltern established himself as an expert on the patterns of chaos with Cana's own expert, LAARIS, who now captained the Tantalus. *Studying the patterns with Laaris, Bron learned that the* Tantalus *was doomed to destruction via the same agency that demolished Onaris—a finding that tended to support Cana's theory that some mysterious force in the universe was determined to kill Bron.*

Of more immediate concern to Bron, however, was his growing conviction that General Ananias had sold out to Cana. While the Destroyer fleet was making a subspace jump homeward Bron succeeded in secretly launching

Tantalus' *hellburner torpedoes at what he believed to be the Destroyers' base-world. Subsequent events proved him wrong on all counts—too late he tried to warn Cana, whose men beat him mercilessly. Bron came to on the planet he had doomed, to discover that Ananias had been rebroadcasting the supposedly secret transfer-link communications on Cana's wavelength and that Cana now knew who Bron really was.*

The rebroadcasts actually helped Bron to convince Cana of the imminent arrival of the Tantalus *hellburners in time for the latter to evacuate most of his men—he had merely used the planet as a stopover base during raids. The hellburners arrived before the evacuation was completed—the entire planetary system was destroyed and Cana lost heavily in men and materiel.* Tantalus *was demolished in the holocaust as predicted by the chaos patterns and Cana remained convinced of Bron's value to him as a "chaos catalyst." He not only let Bron live but permitted him to try to manipulate chaos events to alter their patterns when these seemed to doom some of the remaining Destroyer ships. Bron's success was partial but spectacularly unprecedented—and when the patterns of chaos suddenly predicted the imminent arrival of an apparently invincible attacking alien fleet from outside the galaxy, Bron —at Cana's insistence—was named to command the combined Terran and Destroyer forces summoned to repel it.*

XVII

"AND that's the score at the moment." Ananias's voice came wearily over the FTL radio. "An advance party of about a hundred alien vessels is already within the confines of the Milky Way. This appears to be the spearhead of the main attack force still moving in from the void."

"Didn't the advance party show up on chaos analysis?"

"Yes, but we couldn't determine the significance of our readings. Some activity was apparent in the direction of the Space Dependencies, but we couldn't plot its position accurately—we were working with too short a baseline. Now that we have access to the Destroyer chaos records we can correlate with a fair degree of accuracy."

"Now is too late," said Bron. "It should have been done five years ago."

"Agreed. You and Cana and I know that, but Terra couldn't be bothered to listen. How do you want to play this, Bron?"

"We must know more about their craft and their weapons. We need to experiment with tactics on a limited scale before we're forced into contact with their main

fleet. Prepare six battle cruisers to make a direct attack on the smallest grouping of alien ships you can locate."

"Why not use the whole fleet?"

"Because any ship of ours that goes into that battle may not come out again. I want the maximum amount of information from the minimum number of ships at risk. All data on weapons effectiveness, both positive and negative, are to be transmitted via FTL radio and recorded for analysis."

"Engaged."

Ananias cut transmission. Bron relaxed slightly and looked along the *Skua's* bridge, which had become his command post and had been virtually his home during the past thirty-six hours. All the communications posts were fully manned by the extrovert but nonetheless efficient Destroyer technicians. His assumption of Daiquist's former position had gone smoothly. Bron had the feeling that his somewhat unusual status as a master syncretist, plus his obvious familiarity with battle command procedure, had already created around him something of a legend. Certainly he could have asked no more in the way of respect and willing obedience from the tough Destroyer shipmen.

The *Skua* and a hastily regrouped assortment of seven Destroyer ships had left the comforting rimline of the extremities of the Milky Way and were now engaged in their own exploratory run, similar to the one being undertaken by General Ananias and the Commando fleet well within the Rim. Bron could feel the weight of a great loneliness—it beset the mind as his ship carved deeply into the terrifying void between the great galactic clusters. The eight were on the trail of a lone alien straggler, which purely random chance had detected as a solitary, isolated pinpoint in the wastes of extragalactic space.

The detectors had already located and confirmed the course of the alien and soon the screens were beginning to pull in the first indications of electronic contact. The weapons crews were busily setting up their missile programs, but Bron decided not to call for a chaos analysis of the outcome of the attack. He preferred to go into battle still full of the undimmed hope that an adverse analysis would have destroyed. The eight vessels all had a specific pattern of weapons to employ and the directive was simple—after performing the allocated task they were to withdraw out of attack range and stand by for further orders.

SOON the alien was clear upon the screens, a trimmer, more acutely wicked craft than the one that had destroyed the *Jubal.* This craft was covered with faceted nodules that might have been

weapon points or merely a peculiarity of the hull plating. As he watched the critical registers run toward battle-zero, Bron again sensed the quieting of the alien tongues in his head—the hushed expectancy. The babble fell to a low moan, a tense anticipation. Anticipation of what? One does not anticipate defeat or victory with quiet expectation—only the springing of a trap!

Instantly he was on his feet and running toward the communications point, shouting with such urgency that all eyes turned to him.

"Abort the attack! All ships abort the attack and drive clear. Crash emergency!"

The image on the screens dropped out of focus as the *Skua* swung into a violent turn that almost broke her spine. The great ship fled in the tightest arc its gravitic compensators would allow it to follow without destroying the crew. Even so, a lack of compensation of several gravities subjected the men to a stress component many times that to which they were accustomed. But as the screens came back into focus, the sounds of complaint died immediately.

Bron's outburst had been justified.

The alien ship blew up. It split in one incredible second to form a fireball that became a raging quasi-stellar inferno and finally a quasi-star. The shipboard radiation detection systems screened warnings of impending breakdown of the biological protection screens. Then the mad sun collapsed and died, its energy consumed and dissipated in its short but fantastic life.

Bron called in his companion ships. Not one had suffered serious damage. Their captains were grateful—though still bewildered by the orders that had brought them out of the maw of a searing death. Another part of the Bron legend had been added to the Destroyer chronicles.

BRON was unable to explain. He was having an increasingly difficult time hearing normal conversation above the rising level of angry goose-snarl and bicker the futile loss of the alien ship-weapon had evoked. When his head-noise finally quieted he called Commando Control.

"Are you there, Jaycee?"

On-line Bron.

"Anything to report from your end?"

They're having trouble with noise in the Antares receiver. Sounds like somethin' boilin' in a pot. They're filterin' it out now, but it was bad a short while ago. That was quite a fireworks display you just had.

"They used to serve a drink with a comparable effect in a little bar at the back of Europa Commando Base. Six shots and you woke

three days later with radiation sickness instead of a hangover. I could do with a bottle right now."

Jaycee began to laugh. *Sounds like the old Bron memory might be returnin'.*

"It is, in little unconnected bits. But most of what comes back I'd as soon not remember. And I still can't remember you. Should I?"

That's classified information, Bron. I can't give you an answer.

"Damn it, I demand an answer."

"You're not getting one. While we're coupled on a mission, we're part of a psychologically matched team. We don't dare do anything to upset that, Bron—if it goes out of balance the linkage becomes quite intolerable. Especially for you.

"And for you, Jaycee?"

I don't count. I have to solve my problems my own way. But you can tolerate me in your head for such long periods of time only because I supply somethin' your personality needs. You may be a warlord to Cana and the General Staff, but I know you're a Godlost louse and it's my job to make sure you never forget it.

"Thanks for nothing. But you've given me something I'm going to work on. Did you get me any answers from Ander yet?"

He's in the viewing room feeding maths into the computer terminal like he was payin' the rent out of his own pocket. Do you want him on-line?

"Not if he hasn't finished. Just add the tapes of that last alien encounter to the stuff he's already working through. Might give him something new."

Are you on to somethin', Bron?

"I have a feeling that the aliens aren't going to be defeated by conventional weapons. If they've studied our chaos patterns over the ages, they'll know all too well the limitations of our present arms technology. If they're the master technologists they seem to be, they'll already have made sure that their fleet is relatively immune to our diffract-meson and other particulate reactions. Yet we must have acquired something that's worrying them, I believe, or they wouldn't have moved so suddenly against us at this particular time."

And you think you have a line on what our worry factor is?

"All the evidence points to this—it has something to do with chaos. They tried to stop Cana from acquiring chaos men. They tried to stop me on Onaris. They used a sort of chaos non-event weapon on the *Jubal.* It begins to look as if chaos itself holds the key to the battle. But how to fight a physical spacewar using a mathematical abstraction is something I don't begin to understand."

"RECEIVING you, Ananias. How did it go?"

"Diabolically, Bron. We lost all six ships to the weirdest space

strategy I ever saw. The aliens rammed them."

"They what?"

"Rammed our ships in straight collision courses—in one-for-one exchanges. Whichever way our ships turned, one of those damned aliens swooped on it and exploded. I'm worried, Bron. When we battle that fleet coming in from the void, we won't have the numbers to fight them on such a basis. And our weapons don't touch them at all."

"You've met them in space before, on the *Tantalus*. Tell me about that time."

"That was different. The *Tantalus* was on a deep-space exploratory voyage. We dropped out of subspace about nineteen parsecs out from the Rim to establish real-space bearings. To out astonishment we immediately picked up readings of a ship closeby. We know now that they must have been aliens using a chaos prediction on our drop-out point, but in those days chaos to us was scarcely more than a toy. The coincidence of another vessel's being so close to us after our casual drop-out seemed remarkable. We tried to make contact, but received no answer to our signals. Next the alien came straight at us on a crash course. There was an explosion or something—I've never quite been able to remember what—and I blacked out, probably for a long time. When I came around, the crew was dead and the whole ship seemed foreign and strange. It took me quite a while to accept that both the ship and I had undergone lateral inversion. At first I was convinced that it was purely a trick of eyesight. I don't know what killed the remainder of the crew, but it seemed to be some sort of shock."

Ananias paused for Bron's reaction. Bron said nothing. Ananias went on.

"I drifted for days. I had no crew to run the ship and not much of it would have functioned in any case. It took all my effort just to stay alive, patching a life-support system onto a rather inadequate emergency supply. Finally Cana's long-range detection system must have spotted the *Tantalus*—they sent out a patrol to investigate.

"Cana wanted the warning about the reality of the aliens conveyed to Terra in no uncertain terms. I agreed to take back his message. He had me put on a tramp ship at the freeport on Stere and I returned to Terra and told the story straight. It was interpreted as an elaborate lie to save my skin—with the suggestion that I'd sold the *Tantalus* to the Destroyers. I was officially reprimanded—but unofficially I had a few friends who took the warning seriously. One of them was you—"

"All right—we'll go into that later. First let's see if we can wring some sense out of what we know about the aliens thus far," Bron cut in. "We've already seen them

use four different modes of destructive or disruptive space attack—the non-event destruction of the *Jubal*, the ramming of your six ships, the explosive destruction of the one I attacked, and the lateral-inversion shock on the *Tantalus*. None of these modes involved weapons as such—the aliens may not have evolved any. They appear to rely on the use of their ships, kamikaze fashion, as destructive instruments. But all these modes involve materials and methods that belong to an order of science well beyond our present grasp of physics. Additionally, all four are completely different. Since the incidents were well separated in time and space it seems reasonable to suppose that we haven't yet seen the full spectrum of the enemy's destructive effects."

"Would they employ variation for variation's sake?" asked Ananias. "Or do you suspect some other significance?"

"I suspect deeper significance. They've spent millions of years experimenting with chaos analysis. I've already proved that if you can provide an effective substitute for a predicted event—you can cheat the chaos prediction. But there's a limit to the range of substitute effects we can manufacture. I think they've analyzed this coming battle many times over and stacked the deck heavily in their favor, knowing we can't match them on their tactics. We don't have enough ships."

"Which means we're damned from the start."

"Not necessarily. There's a logical consequence to that line of reasoning that may be the piece missing from the puzzle."

"I'm damned if I can see it," said Ananias. "But then I seldom could follow the deviations of your tortuous mind."

"LOOK at it this way, Ananias. Suppose you were playing a computerized war game. Having taken a sound theoretical beating, you would reconsider your tactics, evolve a new strategy, and submit your revised program for a re-run. Given enough imagination and sufficient computer time, you could ultimately evolve a technique that predicted a high probability of victory against any odds."

"Agreed. But I don't see how it applies in this case."

"Suppose the aliens played a war game on the coming battle, using chaos to analyze the results. Suppose they saw they would lose it, went back and tailored the embryo designs of their fleet. Then they reran and kept tailoring until they thought they had the right answers. Don't you see the logical inference?"

"Frankly, no."

"Then I'll tell you. It means that chaos predictions are not fixed and immutable. There must be parallel alternate tracks where the final resultant is dependent on some branching in the chain of causality.

There are actual decision points that can change the entire structure of future history. Perhaps that's the role of a chaos catalyst. Perhaps he alone can break the predetermined web and shift the future to a new track."

"My God, Bron! If you're right—"

"I have to be right, Ananias, because if I'm wrong there won't be much hope for Homo sapiens when that armada gets through."

"How do you plan to make use of the idea?"

"By inserting some of the Bron brand of chaos into the general situation to give us time to breathe. I want to try playing the system against itself. You've got a transfer link transceiver in your radioship?"

"Yes, but I don't see—"

"Hook up the receiver to your most powerful FTL radio transmitters and have all ships lock on to that. On the transfer link you'll find an alien signal. Antares is having trouble with it, so you must be able to receive it. When you're approaching a battle situation during which the aliens get tense, you'll find the signal quiets down. When they sound hushed and expectant—worried—that's the time to get out fast."

"How will that help?"

"Past performance tends to indicate that a percentage of the aliens will destroy themselves at that critical point. We can avoid some of the disasters by making use of this realtime feedback on when to quit. They'll probably catch on to the tactic soon enough—but I think we'll have them worried for a while—"

The clangor of the battle alarm tore Bron from the hand-set and sent him racing for the screens. As yet nothing was visible, but the computer output terminal was angry with coordinates and course predictions of ships that seemed to occupy a mammoth arc in space. To judge from the activity, many hundreds of alien ships were approaching from the void. A large number of them were exhibiting chaos shockfronts that foretold of ultra-violent entropic changes.

Bron had a sudden change of mind. He ran from the bridge to the ship's chaos complex, calling for a forward scan of the patterns containing the *Skua's* own red shipline trace. The computation was hastily set and the long graph of chaos ripples that surrounded the ship's existence began to issue from the plotter. For a sweep extending several hours ahead, the red trace ran unwaveringly down the center of the chart, showing no deviations despite the turbulence of the patterns in the near continuum. Then, at a particular point, the red trace leaped to a maximum—and fled immediately to zero.

A startled murmur rose from the assembled technicians as the prediction of the end of their own existence was registered only a few

hours away in time. Bron cut in curtly.

"Run that scan again to the same point. As soon as you reach the fall-off, reset and start again. Let me know as soon as you obtain a difference between two consecutive scans."

HE BECAME aware that Cana had entered the complex and was taking an acute interest in the proceedings.

"What are you up to, Syncretist? Are you still trying to prove that the future doesn't necessarily have to happen?"

"I submit there's a flaw in chaos theory and I'm determined to prove it."

"With all those alien ships coming in you'll need a miracle more than a theory. You have about four hours to disprove the tenets of a complete science."

"Chaos is neither complete nor science," said Bron. "Think about it. The aliens wouldn't have tried to stop me on Onaris if they had seriously believed I was going to fall four hours from this moment."

Back on the bridge the screens were now showing myriad points of unresolved light—the alien armada was crowding in from the void. A chill tension governed the actions of the crew—even with the Commando fleet to back them, the defenders were hopelessly outnumbered. The further knowledge that they had no effective weapons superimposed on the tension a sort of dumb fatalism quieter than panic and strangely, not entirely devoid of hope.

"Jaycee, get me Ander. Urgent."

I've got him on-line, Bron. I thought you'd need him around about now.

"Good girl. Ander—I suspect there's a flaw in chaos theory. I'm suggesting that a future event established by chaos analysis doesn't necessarily have to happen. I submit that cause and effect may be made to diverge and that the initially recorded resultant may not in fact be the final one."

It's part of Yohann's multi-field theory. The idea is well supported by mathematics but has never been verified.

"I think I may have that verification. You've been going through the tapes, so you'll recall I cheated chaos a little by arranging a substitute explosion in lieu of the destruction of the *Anne Marie.* Was that not a divergence of the causal chain?"

Only a slight deviation. Another ship, the Jubal, *was destroyed instead.*

"Yes, but destroyed at a later point in time. What if in that borrowed time something in the situation had given rise to a new chain of causality? The new chain could not have existed had not the original one diverged."

A brilliant bit of theorizing, Bron. But there's no proof. Un-

fortunately nothing happened to initiate a new chain in that borrowed time.

"Oh, but it did, Ander. In that time I made the decision to ask you to check the tapes of the incident, and a direct consequence of my having done so is this present conversation—and any actions I may take because of it. If the original chain had not diverged, this particular conversation could never have occurred."

A silence ensued while Ander thought the situation through.

Point conceded, Bron! The full implications are too big to be swallowed at one gulp, but I would say you have produced valid proof of a deliberate redirection of history.

"That's all I wanted to know," said Bron. "I'm going to play that angle, if necessary, until the universe breaks up."

He broke off as an excited chaos technician came up, waving a chartstrip at him.

"She impossible, but 'ave 'appened. Shipline does no' go zero any more. Is what you call bloody magic! Is insane!"

"Insane or not," said Bron, "it's the way things are going to be from now on. From now on I'm taking a hand in deciding what the resultant's going to be. But I'll tell you one thing, I doubt the universe will ever be the same again."

You're not only a Godlost louse, you're a Godlost egotistical louse, Jaycee said bitchily deep inside his head. *Cut loose like that again and I'll tell you things about your mother that will make you wish you'd been born from an egg-case."*

XVIII

"ANANIAS, did you get that alien signal on FTL transmission yet?"

"About two minutes ago, Bron. We're currently raising a radio alert to make sure all fleetships lock on to the transmission and relay it for the captain's attention."

"Good. Make sure the captains know how to use it. I've ordered the Destroyer fleet to lock on to the same frequency. Since there's only one signal, we'd better try to phase our attacks so that we don't have two in progress simultaneously. I'm gambling on the fact that the aliens may not have FTL radio—so they won't suspect how they're being anticipated. Use normal weaponry during the attacks in order to disguise out change of tactics."

"Engaged, Bron. Do you want us to move straight in?"

"As soon as you're ready. We're just mustering formation. Then we're going to move straight down the centerline and have a crack at anything that comes."

"I'll say one thing for you," commented Ananias. "When it comes to backing hunches, you back yours in a big way."

Bron broke the connection then called Cana on the shipboard communicator. The span of alien ships now swam large on the screens.

"We're set to attack in about ten minutes. I'd be happier if you'd consent to board a corvette heading out of battle range."

"Why?" asked Cana. "What had you in mind?"

"We're going to try a technique that may upset the balance of chaos to a point where we can't rely on analysis for our answers. We've no means of telling whether this ship—or any ship—will survive the battle. I'd prefer to see you headed safely toward baseworld."

"If we lose this battle," said Cana, "the aliens will come straight through anyway. There won't be any baseworld to be safe on. Thank you, but I'll stay aboard the *Skua*."

"As you wish. I merely thought I'd let you know the odds."

"Bron, in the short time I've known you I've lost every certainty I ever had about life and the nature of the universe. You don't play the odds—you bend them to fit the way you want to go. You're one of the most terrifying characters I've ever met."

I'll second that! said Jaycee archly.

Lightly at first, then with an increasingly sonorous thunder, the mighty gravitic drives bit into the fabric of space and hurled their charges toward the alien horde. Ahead of the great ships, like a miniature fleet in itself, drove a wave of diffract-meson torpedoes, potential minature novae running like avid hounds before a hunt. The images on the screens lost their multiplicity and began to concentrate on narrower, more detailed fields as the Destroyer fleet flung itself straight at the unknown enemy.

A chorus of alien voices rose in a complex wave inside Bron's head—he detected patterns of rising alarm, of jubilation, of expectancy and fear.The speaker at his elbow repeated the diversity of sounds—but though he had control of the speaker's volume, he had no such power to protect himself from the sounds within him.

Then came the first contact. The abortive flare of diffract-meson warheads hazed the screens momentarily. When they cleared again it was to reveal three Destroyer ships concentrating on an alien pacemaker. The ships dived in a perfectly conventional attack maneuver and the alien signal fell to a hushed moan. At its ultimate atonal expression of expectancy the Destroyer ships pulled clear. For an instant nothing happened—then the alien was engulfed by a flame that stripped its very atoms of cohesion and scattered an impossible bloom of unknown ionization broadly across deep space.

IN Bron's head the alien voices sang their wrath large and venomously. He was not dismayed. He had already calculated a method of keeping their complaints within a tolerable range. With sure fingers on the console keys, he signaled the next sortie.

Two Destroyer corvettes, displaying an admirable turn of speed, shot straight toward a configuration of three alien vessels on what was apparently a deliberate crash course. For once the aliens seemed to falter. Two made hasty course corrections as if to avoid the impudent aggressors. The third stuck doggedly to its route and Bron suspected that it was yet another gutted container.

With a precision beautiful to watch the corvettes bore down mercilessly upon their prey. Though Bron had planned the maneuver, even he was caught by the suspense of the action, was seized with a sudden fear that the plan had misfired. Both craft approached their targets to incredibly narrow limits before they vanished abruptly from the sky. Only the voices of their captains still reciting tachyon coordinates on the subspace radio convinced him that all had gone as intended and that the corvettes had slipped safely into the subspace continuum.

Disappointingly, the alien ships did not immediately perform their suicidal role. They clung for several seconds to their crash-evasion courses, apparently not convinced that their attackers had actually gone. One, however, had adopted a setting that took it too close to the undeviating "container" ship. They touched, and both ships broke apart with the same type of eventless energy reaction that had destroyed the *Jubal*. The trajectory of the remaining vessel took it lazily through the fringes of the crumbling flotsam before it, too, fell apart like tin held in too hot a flame.

An almost complete silence now quelled the alien voices. It was untypical, warning Bron that some new factor was entering the battle. Immediately he had a suspicion that the fight was not destined to be one-sided. Vainly he hunted across the screens, trying to identify the threat. He saw the pattern too late to figure out its portent. Seven alien ships were involved, one centrally and the rest ranged in regular array in a vast ring a half-million kilometers in diameter —which included nearly half the compass of the Destroyer fleet. Superficially nothing was different about these vessels except that they kept station in this unusual formation with completely mathematical precision.

The alien mutter fell below the audible threshold. Plainly some diabolical purpose lay behind the strange formation, whose function Bron found impossible to imagine. Unfortunately he did not have time

to search for an answer. A Destroyer battle cruiser, reading no significance in the design, attempted to pass between the hub-ship and the exterior ships of the ring. The cruiser was vaporized instantly—some unknown molecular lightning had flashed between the hub-ship and one of the ring-ships. The fact that this unlikely pulse was a quarter of a million kilometers in length did not seem to attenuate its effects.

Bron winced and closed his eyes as the major disaster struck his fleet. Fully thirty Destroyer vessels, unable to identify their particular danger or unable to maneuver in time, were caught by the grisly lightning. The blazing lines of fire cut a wide core through the Destroyer ranks.

The alien expectancy noise now was up full. Above its tones Bron's orders were rapid and articulate. Ships on the fringes of the fleet were ordered to attack the alien ring-ships by approach from outside the ring's circumference. Two ships misjudged the relevant positions and were consumed. Then came a stroke of genius—a cruiser's captain put an unmanned pinnace on a crash course with a ring-ship. The alien vessel exploded in a blaze of pure energy. Unbalanced, the remaining ring-ships discharged their bolts at each other as well as at the hub-ship. The disk within the ring became a blaze of energy of a type that should never have existed outside of the structure of an atom. Bron held his head as the ring collapsed. He strove to restrain a scream as wave after wave of alien reaction threatened to swamp his reason and drive the logic from his head.

After a quarter of an hour the bitter outcry quieted. Bron began to receive reports of the cost of the operation to the Destroyer fleet. He had lost more than fifty ships and another twenty had taken precipitate jumps into subspace. A few might one day return. His confidence shaken and his forces dangerously depleted, Bron could only stare at the oncoming armada and wonder what the end was going to be.

He felt lonely and inadequate.

DON'T think I'm cryin' for you, said Jaycee brutally. *I always knew you were a congenital loser. I've got Ander on-line. He's not only a man—he's got ideas.*

"I've got ideas, too. One day I'm going to beat hell out of you Jaycee. But I could use something constructive right now. What's the readout, Ander?"

I was puzzled by that shell of a ship, Bron. I ran a chaos analysis back to its origin. It's contemporary with the Onaris hellburner—in fact the whole fleet is. They've all been in space for seven hundred million years and made the whole journey at sublight speed.

"Hell—are you sure?"

There's no doubt of it. The theory accounts for the throw-away containers. According to my calculations better than ninety-nine percent of that fleet must be now consist of gutted provision ships.

"That puts a slightly different complexion on things," said Bron. "At least I'm now only looking for a few dozen manned ships in the whole outfit."

Probably fewer than that. Anyway, you have the great psychological advantage.

"How do you compute that?"

Self-evident. Meeting you is the climactic point of some seven million centuries of endeavor. No life-form, whatever its psychology, could regard that point lightly. In fact, you're the reason the fleet exists! There's no evidence to show whether its builders are a race with exceptional longevity or whether they've bred through many generations on the journey—but either way, you're a super-legend. Would you dare to take on God Almighty?

"Frankly, I'd cringe at the thought—if I were convinced he existed."

Precisely. But they are convinced that you exist. That's why I think the raid is defensive rather than offensive.

"Defensive? You have to be joking, Ander."

Not at all. Lacking subspace access, not one of those ships can ever return. There's no point in their engaging in a destructive attack—unless it's a sort of last-ditch defense. No, Bron. This is a one-way suicide mission, hell-bent on trying to divert some aspect of chaos-predicted future history.

"If that diversion includes the destruction of the Destroyer space-force, then they're close on target. Even their empty container ships are pretty formidable weapons."

Quite deliberately, intended as such, I suspect. For that sort of journey every atom of payload would have to worth its weight in potential. Knowing in advance the physical effects available to us, the aliens would have engineered virtually every molecule in the fleet both to withstand our destructive capability and to destroy in ways against which we'd have no defense.

"What you're postulating substantially agrees with what we're finding. Even the empty hulks are immune to particulate and nuclear reactions. Their only weak point seems a susceptibility to self-destruction initiated by near or complete contact . . . Jupiter! Ander, I think you may have given me an answer. The function of a catalyst is not to cause a reaction but to accelerate a reaction already latent. In fact, to outplay the system at its own game."

THE next moments saw Bron running across the bridge, calling for the weapons master and the ship's armorer. He outlined his

new tactics to them, set them moving on the double to make the necessary modifications in *Skua's* torpedo warheads. He instructed the ship's captain to locate a suitable target for an experiment, then spent a few fleeting instants advising Jaycee of his view of her place in the lower firmament. Having done this last he felt much better.

Already the aliens apparently sensed the new excitement. The waves of muttering grew shorter in period and a spreading panic seemed to be expressing itself in a volume of sound steadily rising toward some thixotropic crescendo it never actually attained. Bron could even detect quick and urgent voices, individuals calling and responding, a nervously increasing tension that hinted of fear and anger and terrible resentment. He could almost picture the aliens crowded in darkness, dripping with moisture, smelling of unknowable fluids because of too close confinement with impossible engines. He thought he could read their leaning toward violent death as a final escape from a foredoomed and long-suffered incarceration.

His target chosen, Bron waited for the armorer's clearance on the weaponry. He did not get the go-ahead until his ship had entered battle range. There were only seconds to go before the critical registers would run to zero. Knowing that he was now committed, he keyed his confirmation and allowed the computers to take over battle-control.

With the alien target ship clear upon the screens, he watched the long slim space-torpedoes slide out. Their progress across the space vector seemed maddeningly slow. The tension rose audibly among the Destroyer crew.

As the torpedoes crawled toward their target the magnification of the screens increased to provide a close-up of the area where the actual strike would take place. Normally a strike's reaction brilliance overloaded the screens and precluded any viewing of the exact moment of impact—but when Bron's modified torpedoes hit no energy was released from the projectiles themselves. Instead, the stricken alien put out crazy spirals of some unknown mode of energy discharge. The screens remained clear.

For a tense moment the alien craft developed long, coruscating helixes of purple fire, like some surrealistic porcupine. These discrete rays of energy lengthened to peacock-tail configurations and could easily have enveloped any closely attacking ship. Then the curious emanation collapsed and died, leaving only ion-contaminated vacuum to mark the place where the ship had been. Almost the entire mass of the alien ship had been converted to controlled-release radiation—a fantastic technical potential, the purpose of which had

been thwarted by Bron's modified weapon.

THROUGHOUT the entire episode the goose-mutter had been subdued and anxious. This time there was no returning roar, only a continuing murmur of despondency and fear. Bron ordered another target ship to be found, and he relayed details of the new technique to several companion ships. He sensed that somehow the aliens could read the consequences of his decision-making. The steady depression in their voices convinced him that his present course of action was going to swing the battle decisively in his favor.

A second successful sortie reinforced his conviction that he was on a winning streak. Soon two other fleetships reported enthusiastically that the method worked. The promise of again being able to attack with long-range weaponry galvanized the Destroyer fleet into action. It was for this type of spacewar that the crews had been trained and the magnificent ships equipped. Now they were again the Destroyers in a truly literal sense.

Bron winced as he saw a hundred of his ships simultaneously engage the enemy. The bronze-hued ships moved like fireflies, weaving intricately slow patterns against the vast backdrop of the void. The dark alien vessels maintained the meticulously straight, lonely courses of the damned. Soon the aliens were erupting into futile suicidal reactions in half a hundred different modes of physical disruption. Great wastes of space became momentary suns or were lit with vast tracts of impossible ionization. Sometimes these reactions were so fierce and numerous that a new galaxy seemed-being born beyond the shores of the Milky Way.

"Ananias. Come in, Ananias."

"On-line, Bron. We can see you now. That looks like quite a party you're having."

"Yes. We've found their Achilles' heel. Their vessels are not susceptible to destructive reaction, but they destruct themselves if subjected to physical contact. Our normal space missiles had proximity fuses, so they never made physical contact before they actuated. All we're doing is taking the fuses out of the warheads."

"But if you withdraw the fuses, the warheads can't activate!"

"They don't need to. The entire alien fleet is on a suicide run. Every damn atom of it is programed for catastrophic destruction. All you have to do is trigger it."

Space blossomed before the *Skua* with a hundred fleeting suns. Ion trails glowed like neon bars. Red, violet and yellow fire pockets sprouted like fantastic flowers in space. An insane landscape of insubstantial radiation effects was emerging plainly on the broad canvas of nothingness. The alien voices were now a continuous

scream of fear without perceptible inner-modulation or separation of components—but rapidly becoming thinner, as though the members of the unholy choir were sinking one by one and drowning in their terrible pool of fire.

XIX

FINALLY the alien voices faded and died, the last traces lingering like smoke after a summer's fire. As the Commando fleet cut through to join the Destroyers it was already apparent that Bron was going to win the battle. Soon the ships from the combined fleets simply ranged wide through space, seeking and destroying stragglers. Ultimately there was a silence in Bron's head.

He felt a compelling wave of fatigue sweep over him. He had not slept for better than thirty hours. When the trailing fringes of the battle no longer demanded his immediate attention he quit his desk, went to his bunk and fell instantly asleep.

After a while it seemed that a gentle rocking motion aroused him to a semiconscious dream state. A part of his mind realized that this was an illusion produced within sleep, yet some analytical faculty remained intrigued by the detail inherent in the recurring nightmare. Instead of rejecting the situation and forcing himself awake, he allowed himself to follow the fantasy. It started with an almost complete absence of tactile sensation, as though his mind had become insulated from his body or his body from reality. Yet he was aware of the ripple and eddy of a gentle tide that bore him over black waters.

The impression deepened until it achieved the status of reality. There was no light, but the fidelity with which the elements of the pattern came together was so consistent as to be perfectly believable. He could hear the slight wash and lap of small ripples against the tunnel walls and the quick near-ultrasonic echoes that gave proportion to the dark tunnel down which he was being drawn. Somewhere ahead a phantom goose was piping through a layer of slime with a plaintive concern that had no human associations.

A sudden bend in the impossible river made itself clearly felt as his imaginary raft fouled some jagged corner and swung him around before allowing the dark sluice to carry him on. Somewhere on his way the solitary glutinous goose was joined by another and then by an increasing number to raise a harrowing hymn that filled him with a cold horror. Another bend, and this time he clearly felt the bump against the bank. . .felt the bump. . .on his suit. . .

Suit? His shocked fingers explored, found slight seams in the inner lining of heavy gloves. His whole body confirmed the sug-

gestion that his earlier lack of sensation had been the combined effect of his being confined in the padded recesses of an exceptionally heavy-duty spacesuit and of a numbness of the flesh, presumably from his having lain in one position overlong. These factors, plus a light gravity and the buoyancy of the fluid in which he floated face up, explained his lack of tactile sensation and his appreciation of the direction and motion of the tide. Nothing explained, though, why he was conscious of the detail of so unlikely a situation—or what diabolical things were waiting for him around those stygian bends.

The goose-mutter rose into a braying scream, a chorus of dissent, accusation, rebuke. The quality of the dreadful sound alone would have been sufficient to make him flee from the encounter had he been able to control his actions. As it was, floating on his back in a nearly unmaneuverable suit, he had no more power to resist his journey than if he had been an upturned beetle in a racing gutter stream. Hundreds of millions of years of fear and hatred were being vocally compressed into a jarring anthem of complaint and the bitterest of reproaches by something that waited for him around the final turn of the river.

Panic swamped his reason. He struggled against the encumbering suit, fretting at his inability to move his arms. Restrained and helpless, he waited with dreadful anticipation as the inexorable tide bore him around the curve. Overhead a million pressures leaned their dark depressions on the tunnel roof. The air he was breathing was hot and moist with the sweat from his fear and so tainted by metal and plastic that it soured his tongue. At any moment now he would emerge to face persecutors who had planned his murder at a time when life on Terra had still been struggling for an identity separate from the nonliving elements of the primeval soup.

HE HAD no idea of what their faces or forms would be like, but he doubted that his sanity would stand the revelation. The scolding choir was now so near that he felt he ought to be able to stretch out and touch the violent and anguished creatures. He felt there ought to be a light—but he could discern none at all. Then another voice crept in, quieter at first, but gradually pulling at him with such urgency that he had to turn toward it regardless of suit or geese or the drag of the unknown tide.

Perhaps in the sordid cells of some inhuman inquisition a spirit snapped. . .

"Jaycee, help me!"

. . . the mind mazed not by the searin' steel, the nibblin' nerve. . .

"Jaycee, for God's sake, get me out of here!"

. . . but by a vaster wound. DON'T YOU KNOW THAT GOD IS DYIN' . . . DYIN' . . .

"Jaycee, I don't know a blessed thing about God, but get me out of this."

You're coming out, Bron. Hold on a little longer. Your metabolism is improvin' fast and your heartbeat's almost back to normal.

Bron opened his eyes. An oxygen mask was pressed across his face and beyond it the concerned eyes of a medic were watching him anxiously. As he focused his vision he found he was no longer in his bunk but on an operating table in the *Skua's* medical bay.

"What happened, Jaycee?"

You went into a coma about seventeen hours ago. The medics tried to pull you out but were unsuccessful. Finally I had to use the semantic trigger to force you around, because your body processes were running dangerously low. I've been in contact with Ananias and we were about to authorize a heart massage.

"I had that dream again, Jaycee. The one where I'm floating in a tunnel and the aliens are waiting for me. I've got one more curve to go before I meet whatever they are—"

The aliens haven't given up yet, Bron. You've beaten their fleet, but they've established some other method of gettin' at you. Somehow they're workin' on your mind.

"Those alien signals on the transfer link. Can you still hear them?"

Stronger than ever. Antares is filterin' them out for us, but they're still comin' in.

"The alien fleet signals faded toward the end of the battle. What we're getting now must be long-range stuff from the alien's point of origin. It's some sort of encoded imagery transmitted as sound. It seems to be their form of communication. I can even grasp pictures from it myself at times. But when I'm relaxed the effect can be quite hypnotic."

That computes. Your coma was consistent with the effect of ultra-deep hypnosis. That explores levels of consciousness down to about what we used for the Haltern character synthesis. It's dangerous territory to leave exposed to the use of an enemy.

"I don't feel this as an attack. I feel it's some attempt at communication."

They're just tryin' to kill you, Bron. Plain old-fashioned murder.

"No. It's more than that, Jaycee. That dream place is real—it's a projection of an actual physical situation. To survive there requires a heavy-duty spacesuit—which suggests that it's a very hot place. The gravity is only about half Terra-normal. It has an atmosphere—I could hear transmitted sounds. It also has a hydrosphere—I was floating on some of it. I didn't dream those things, Jaycee. They

were communicated to me. It's an actual place—somewhere."

If it does exist it's in Messier thirty-one—right across the void. But I don't see why its existence is in any way important.

"It is, though. I've got to go there, Jaycee. That dream was a sample of visualized chaos. My journey down that tunnel is an already established part of future history."

You've altered chaos trends before, Bron, so what makes this one immutable?

"Because all we've beaten out here is a few dozen individuals and an uncommonly antique spacefleet. The real enemy is still untouched and probably just as virulent as ever. If they could put a hellburner down on Onaris, they could as easily put one on Terra or any of the other prime worlds. In fact, those burners may already be on their way. If we're ever to win totally I have to carry the fight to them. And that dream, Jaycee, is a prediction of some part of the result of my doing just that."

"ANANIAS, how many ships have you with the potential subspace capability to take them to Messier thirty-one?"

Ananias whistled as he caught the implications of the question. "It's never been done, Bron. Not right across the void. The *Tantalus* went farther out than any other vessel ever did before—and even that was only a fraction of the distance."

"This time I want to go right across. Give me details of any Commando ship with a known subspace-jump capability of better than ten kiloparsecs."

"But you're talking about six hundred kiloparsecs. No ship has that capability."

"No ship has attempted it, so we don't know. I want ships, as well as volunteer crews to man them. We've carried out a review of all Destroyer ships and we think we may have three with that sort of subspace potential. I'd prefer to have thrity."

"Engaged, Bron. I'll run a computer check immediately. If we've any candidates I'll let you know."

"Jaycee, are you there?"

No. Doc on-line. Deep-space Research Labs have just returned a verdict that there's barely a two percent possibility of any ship of known design reaching Messier thirty-one. After about fifteen kiloparsecs the subspace dropout determination becomes so imprecise that dropout probability approaches null infinity. There's no record of anything's having jumped more than fifteen kiloparsecs and having returned to real-space.

"At two percent possibility it's still a risk I'm prepared to take. If necessary we'll take the distance in a number of small jumps."

That won't help. You can't fix dropout coordinates in an area

where there are no stars to use as reference points.

"We'll manage somehow, Doc. It's got to be done."

I still don't see what you expect to achieve if you get there. You can't take an army with you and the star population of Andromeda is even larger than that of our own galaxy. The odds are several hundred thousand million to one against your even locating the right primary, let alone the alien homeworld.

"I'm taking a chaos crew with me. It's estimated that we can get a fair chaos fix from examining the origins of the alien fleet. That should give us some idea of the sector. From there it will be a matter of making astronomical correction for galactic drift and rotation."

You're in charge, Bron. If you want to try it we can't stop you. But from where we're sitting it seems a foolish waste of men and ships.

"Objection noted, Doc. But I have to play the game my way. Is Jaycee there?"

She's off duty. Want me to put out a call?

"No. Just describe her to me."

You know I can't do that, Bron. You don't really expect an answer.

"I fail to see what's so damn secret about the description of someone who spends half her life practicing bitchiness inside my head."

The information's secret for the specific reason that we don't want you to know. The two of you were psychologically paired to establish a strongly antagonistic relationship. As anticipated, you've achieved a high degree of rapport—one not complicated by common sentiment. It makes you two the best operating team we've got. That's why we won't allow anything to upset it.

Bron was amused. "Like falling in love, for instance?"

Don't underestimate the power of the coupling between you two, Bron. You're more tightly keyed together, except physically, than two people could be in any normal relationship. You wouldn't get a weld that thorough even in a classic love match.

"Tell me more, Doc."

I've told you too much already. From now on questions about Jaycee won't be answered. I just wanted to show you how delicate the balance is.

"I think you've shown me a whole lot more than that. I think you've just reshaped a big piece of future history."

Bron moved across the *Skua's* bridge to a computer input terminal. His fingers sought their positions on the keyboard, but his eyes avoided watching what his fingers were conveying to the keys. His gaze remained firmly fixed on the instruments across the room.

What are you doing, Bron? I

think we ought to have a record of that.

"Stay out of my hair, Doc. This whole assignment's out of your control. Regardless of your advice, I'm going to Messier thirty-one. And if I survive I'm coming back to tackle the galaxy's other great enigma."

And what the hell is that?

"Doc, I'm coming back for Jaycee. And it'll take more than the Stellar Commando to stop me."

DEFTLY, subtly, the thunder of the gravity drives died and the six ships jumped into the dimensionless corridors of tachyon space. Every time they reached the quiescent phase of a jump, Bron quit the jump harness and began to plot more detail into his new venture. The Destroyer corvette *Nemesis* was only a fraction of the size of the *Skua*, but its subspace installation was the most powerful in the fleet. Alongside, but invisible now, two other Destroyer ships and three from the Commando fleet sang their eerie way through the superluminal continuum.

Down in the hastily conceived chaos complex of the *Nemesis*, a volunteer crew of technicians worked steadily at the task of pinpointing with increasing definition the origin of the alien armada. The grinning imp in charge of the fantastic improvisation was none other than Academician Laaris, formerly of the *Tantalus*, who presided with troll-like exhilaration over the most detailed and exacting chaos determination ever made.

Lacking the usual stars for subspace reference, the coordinates set up in the subspace grids were based on Laaris's increasingly hardening chaos values for the path of the alien fleet as he backtracked it through space and time. Bron was keeping his fingers crossed. When setting up subspace coordinates, the use of theoretical chaos positions instead of a replica star matrix was a risky and untried procedure. So far the six ships had taken seven leaps of fifty thousand parsecs and had arrived virtually simultaneously and without incident. This was so far at variance with the statistical odds of such long-range subspace operations that all those involved were conscious of living on borrowed time.

It was Laaris who first noted a peculiarity in the chaos-predicted routing. Refusing to accept Bron as anything other than Haltern the master syncretist, he continually brought to him the most obscure chaos problems for explanation. Partly with Ander's help and partly from his own improving understanding of chaos mechanisms, Bron usually managed to produce a satisfactory answer. This time Laaris knew that he had found a problem to end all chaos problems, and his delight at the finding was equalled only by his concern for its possible consequences.

"Mastership 'altern, this you 'ave to explain to me." He unrolled a dozen chartstrips on the table and waited with impatient expectancy while Bron examined them in detail.

"What's the problem?" asked Bron.

"This divergence." Laaris indicated the computer comments running down the edge of the strip. "The farther we go, the more our course diverges from a straight line."

"Which surely only indicates that the path of the alien fleet was similarly curved?"

"Not so! We should be proceeding down straight coinciden' axis from resultant to origin. This is a geocentric line—he got no damn right to bend."

"What about the time factor?" asked Bron. "With the rotation and drift of the Andromeda galaxy through the years, surely our course must curve as we backtrack the alien ships through time. The best fix we can expect chaos to achieve is the position of the point of origin as it was seven hundred million years ago."

Laaris hopped from one foot to the other in sheer exasperation.

"I already 'ave explained. Chaos axis always straight line. You confuse it with space-time where you can 'ave your curvature. In chaos all shock-spheres are spherical and all axes straight. She don' work no other way."

Bron examined the chartstrips again, noting the computed tensorial factors thronging the margin of the record.

"Since it does appear axiomatic that all chaos axes are straight, while our course is not, the logical inference would seem to be that the factors we are feeding into our computers are not true chaos determinations."

"Do you doubt our detectors?" Laaris was immediately on the defensive.

"Of course not. I know you—and you would have checked them before you brought this to me. It's the entropic data itself that I suspect. How possible is it that we're being fed a signal our detectors find indistinguishable from the ripples of a real event?"

Laaris rubbed his brow. "It's only a question of signal strength. Any signal indistinguishable from a true event process would be handled as though it were an event process. If it swamped the original signal we might never know of substitution. Why you ask?"

"Because it has just occured to me," said Bron, "that we perhaps aren't searching for the aliens—we're being led to them."

XX

"JAYCEE find Ander. I need to know if deliberate entropic transmissions are feasible."

I've had Ander on-line since

Laaris came to see you. He says modified entropic transmission techniques are both feasible and actually in use for instantaneous communications over galactic distances. In fact, a form of entropic transmission is used in the transfer link itself.

"Then we could be riding down some alien homing beam we are mistaking for an event axis?"

Affirmative, Bron. With their technology anythin' is possible.

The break-jump alert signaled termination of the present traverse through subspace, and shortly Bron was immersed in the intricate agonies of re-entry. A sudden encounter with a burst of startled alien goose-mutter filled him with apprehension. Since his induced coma aboard the *Skua* the voices had not been raised to a detectable level, though he always now took anti-hypnotic drugs before he slept as an insurance against recurrence.

It took the ship's radio officer scant seconds to identify the attendant catastrophe. Two of their companion ships had failed to make the dropout. A slight possibility existed that the missing ships would revert to real-space at some point in the near future and in some place far removed from their intended destination. More probably they had joined that lost legion of ships doomed to spend forever in the weird, dimensionless corridors of the subspace mode.

Bron called a radio conference of his ships' captains while the next jump was being programed. At their present rate, four more subspace jumps of fifty kiloparsecs each were required to complete the journey to the fringes of the Andromeda galaxy. Each jump bore its own possibility of failed dropout. The statistical odds of survival had already been stretched heavily. Bron decided to try the last two hundred kiloparsecs in one jump. Nobody dissented, though they all knew that they were playing in an area of physics where they had no qualifications whatever.

Laaris soon produced evidence of a pure entropic transmission of such an intensity that it completely obliterated his normal chaos determinations. Although the trap was now painfully obvious, Bron ordered the indicated route to be set up in the subspace grids. Where there was an alien beacon, he reasoned, there also would be the most likely place to find aliens. All coordinates were double- and triple-checked, and the four ships jumped into subspace.

When she finally reached the dropout point, the *Nemesis* was alone.

BRON had to admit to curiously mixed feelings as his lone craft hit real-space at the edge of the great galaxy of Andromeda. Fear, anxiety and regret for the loss of his companion ships were paramount, but wonder was not the

least of his emotions. He had ranged broadly through the Milky Way and knew something of the infinite variety of its stars. Superficially these stars in Andromeda were of similar range in size, type, spectrum and density of distribution. Yet never could his own eyes have convinced him that these were the stars of home. In some indefinable way the magnificent array seemed ineffably unique and foreign.

Perhaps Andromeda indeed was different—among all the stars and planets in the Milky Way only Terra had detectably produced intelligent life. Now, on the edge of another galaxy, he was destined to meet the alien equivalent of Man. His fleet now trimmed to a solitary ship by precalculated circumstance, he knew that when he came around that last bend in the tunnel he would be both defenseless and alone. Alone before a life form that had acquired space capability back when the first alarms of life had begun to shrill on Terra.

"Listen, you out there," he said, suddenly struck by the thought that the aliens probably could intercept his transfer link. "I know you're listening."

The goose-mutter rose to audibility, then descended again below threshold value, almost as if in answer.

Bron continued, "I'm coming down to meet you. You've destroyed many of our worlds without apparent reason. If I wanted I could destroy many more of yours, since I have access to ships that can cross the void in mere fractions of a lifetime. Therefore I come out of strength, not out of weakness. I shall not bear weapons, but if I or my ship comes to harm the rest of my kind will know of it and you will be destroyed because of it."

Again the goose-mutter rose like the waves of an angry sea, then hushed to a background noise like surf on a distant shore.

Laaris came in with his latest calculations. He was now able to pinpoint the source of entropic noise. It appeared to originate from a system only two kiloparsecs in from the alien Rim. Bron authorized the jump and, after the computers had run an astronomical survey to establish a true replica star matrix, the *Nemesis* slid into subspace on her terminal jump.

It emerged in the vicinity of a perfectly ordinary K5 primary of about eighty percent of the mass of Sol. It had only one planet, which was smaller than Terra. Telescopic examination of what little could be seen of the planet's surface revealed nothing significant. It was a craggy rock-ball, cloudbound, apparently lifeless, and with a boiling and turbulent hydrocarbon atmosphere. The temperature of its surface was in

excess of two hundred degrees Celsius. The alien entropic signal was originating from some region of the unfriendly terrain, but the limited discrimination of the jury-rigged scanners on the *Nemesis* failed to resolve the location except in the broadest terms.

The *Nemesis* carried only one scoutcraft, a pinnace. Bron ordered heavy-duty spacesuits to be broken out and called for two volunteers to accompany him. The volunteers came readily. When Bron inspected the suit with which he had been provided, he knew that his journey down that dreadful tunnel was all too soon to become reality.

HAVING been built primarily for deep-space work, the pinnace was unhappy in any kind of atmosphere. It proved especially so in the vapor-laden hydrocarbon storms it now entered. Unable to use its thrust motors efficiently at such low speeds and having an inadequate aerodynamic form for achieving stability in boiling multi-fractioned mineral-oil vapors, the craft stalled, balked and was buffeted by sidewinds, convection currents and wax-laden downdraughts.

Occasionally, through a hail of platelets of crystalline higher-paraffin snow, Bron saw the surface of the planet. He gazed with amazement at the vicious rocky crags swept by an oily, droplet-loaded wind and at the sullen swell of a liquid metal sea. The land masses were spitefully fragmented, broken islands and torn peaks reflecting the atrocious vehemence of unearthly Nature. Here and there vast mountain ranges seemed to have been torn out by the roots and tossed sideways to shatter into razor-sharp rocks and black, impenetrable fissures. Nowhere was there any sign of the restoration of order that would indicate intelligent intervention.

Bron and his volunteers made three sorties in the pinnace, returning to the *Nemesis* to rest, recalibrate their instruments and discharge their records for processing. Laaris was operating all the computer power he had at his command, trying to equate the varying alien signal strength with some aspect of the geometry of the planet. The information from their low-level flights was beginning to match up to a pattern of coincidences, indicating at first a point on the southern hemisphere, then gradually tightening to a particular land mass and finally to coordinates indicating an area a bare kilometer in diameter.

Bron called for aerial photographs and both high- and low-level sets were matched to give a reasonable facsimile of the area. Bron's hands were shaking as he took the finished prints. Some alien description of the place he had not admitted to his consciousness sud-

denly burst into recognition. He knew instinctively how to interpret the patterns of light and darkness. He realized that all this had been described to him in the deep hypnotic coma he had experienced on the *Skua*. On his awakening he had remembered only the traumatic moments leading to the point where he had been torn away from the encounter just before the climax. Now he was back at the beginning of the journey—and this time he felt sure he was destined to go right through to the end.

"Jaycee!"

Readin' you, Bron.

"Give me a readout of the secondary circuits on the transfer link."

Why? You thinkin' of takin' a holiday?

"I said read them, Jaycee."

Very well. Catatonic Withdrawal. Anesthesia with Maintained Consciousness, Punishment, Death. What you meanin', Bron?

Bron held up a print and pointed to a shadowed area that bore no detail.

"That's the entrance to the tunnel, Jaycee. I'm going down there. Unless I miss my guess it's going to be a rough journey. You've got six hours to prepare. Get some rest. Once we start, I'll be needing all the back-up you give me."

XXI

THE pinnace made a precarious touchdown on the only available flat space in the area. The landing was a classic example of triumph over bitter odds. All the way down through the troposphere, the heavy methane winds had buffeted the craft and repeatedly sent it keeling dangerously off course. Storm-walls—sheets of condensing hydrocarbon polymers—wrapped themselves around the optical navigation systems and made nonsense of the readings of the laser altimeters. The embarrassingly high charge of static the pinnace had acquired had to be carefully bled away with sodium plasma before the craft dared approach closely the eutectic metal sea.

Finally, however, the landing was achieved. Flexing slightly on its cushioned legs under the pressures of the storm, the craft stood with nose pointed longingly toward the quietude of space. Its carefully chosen position was atop a black flat-topped rock that protruded like a miniature island from the dull metallic sea. From the incidence of surrounding rocks it was obvious that the ocean here was actually no more than the fringes of a tide eroding a broken coastal shelf.

The sweeping metal surf hammered the black rock with an inertial insistence unnerving to contemplate. The shock of the wave impact was easily felt inside the shuddering ship. A tide with a density of eight, and a temperature of two hundred degrees Celsius, was no mean wash.

A hundred meters away, a mountain cavern opened like a black mouth in a twisted misshapen head. By some mechanism yet to be explained, a strong tidal current entered the cavern but was subject to no apparent reverse of flow. Whatever entered the dark galleries tended to remain.

Your aptitude for most of the weaknesses of the flesh is proven beyond doubt. Jaycee was darkly critical. *Unfortunately your capacity for successful suicide has never yet been established. Is that the place?*

"We know the signals are coming from this area and the stream entering the cave seems to equate with the dream."

So what do you plan to do?

"I'm going in there, Jaycee."

With a task force?

"No. Just me, with you along."

I don't get your motive, Bron. It's a suicide trip even without aliens. Look at the strength of that current. What you tryin' to prove?

"My journey down there is already part of history. I have to know what's beyond that last bend."

Level with me, Bron. You're no martyr and you're not riskin' your fool neck in the interests of interstellar relationships. It isn't heroism and it's not just idle curiosity. You're too damn egotistic and self-centered to care about the rest of the universe. If you're going down that tunnel it's because you've a pretty good idea there's something you think you want at the end of it and you're reasonably sure you're goin' to be able to take it with you. I can't see how you figure it, but as sure as hell I'm curious.

"You know what your trouble is, Jaycee? You've got no soul."

And you know what your trouble is, Bron? You're runnin' remarkably short of future.

BRON watched the fearful scene for many minutes before he began to make his move. At last he quit the pinnace. The terrifying pressures outside stiffened the heat resistant suit and made it even more cumbersome, especially since he had to walk across the broken rocks above the tide-race without being able properly to see the areas to which he committed his feet.

His journey through the terrible atmosphere was like that of a deep-sea diver caught in some undersea vortex. It was a moot point as to whether his own volition or the barbarous physics of the place was most responsible for taking him into the entrance to the cave, but he had a distinct feeling that even the wind was conspiring to make him enter.

Keep goin', Bron. I'm ridin' with you. Jaycee's voice was a welcome touch of reality in the nightmare.

"How are the life-support systems doing, Jaycee?"

The suit appears adequate for about ten hours if you don't dam-

age it. We're not as certain that you can stand that length of confinement. If you get claustrophobic you'll likely do yourself some damage.

"You know how to quiet me if I get that bent."

It would be a pleasure—and not for the first time. You always were a psychological mess. Her words carried the edge of disgust.

He was well inside the cavern mouth now, trying to use the suit's inbuilt lighting to define his way. The jet-black of the rock refused to throw back any useful definition and only the racing metal stream showed up as a wide, glittering tide under a roof that progressively lowered toward an enigmatic somewhere.

Then he heard it. The goose-mutter, this time coming via the suit phones, not the transfer link. From somewhere impossibly far away he could hear the glutinous cries and knew from their urgency that they had detected his coming. He also heard Jaycee draw a sharp breath of anxiety.

Shortly he was forced to stop. The jagged bank on which he had been painfully clambering came to an end with the gradual closing of the tunnel's mouth. Experimentally he tested the racing stream, hoping to strike bottom, but such was its depth and density that he was unable to apply sufficient weight to force his foot down to the underlyingrock. As if he had extended his leg into a torrent of quicksilver, the heavy liquid drag tore him loose from the precarious handholds and with a cry he slipped and fell on his back into the eutectic tide.

As he fell he heard the headlamp strike a spiteful point of rock. This should not have been able to damage the lamp, but somehow it caused it to cease its solid-state illumination. For the first time since he had entered the tunnel he experienced panic as a full appreciation of his animal helplessness closed about his thinking. He was being carried face-up along this fantastic tunnel that murmured and whispered with the ripple and eddy of the unalterable metal flood.

Are you all right, Bron?

Her voice brought back objectivity. "I'm still afloat—if you're awarding any points for buoyancy. But that's about the sum of my assets at this point."

Believe me, you're not jokin'. Aliens or no aliens, you know you've got no chance of ever gettin' back out of there. So precisely what you up to, Bron?

"Would you believe that I'm not up to anything?"

No! I know you for the scheming wretch you are.

"Then I'll tell you what's on my mind. I'm accepting that dream imagery as being a piece of visualized chaos. I regard it as proof that I did—will—somehow penetrate right into this place. Right up to the point where the aliens are."

But you don't know what happens beyond that point.

"No, except that it's axiomatic that this expedition must be successful."

Where in space did you conjure that piece of wishful thinking?

"My dear Jaycee, it's been implicit in everything the aliens have done. The hellburners, the armada, were all in some way aimed at lessening the probability of this contact's ever being made. All those years ago they tried to avert the happening that is soon to take place. They would scarcely have gone to those lengths to prevent something that was going to fail anyway. Therefore it has to succeed."

I don't see it that way, Bron. I think they've tried every way they know to destroy the chaos factor you represent. All their long-range attacks failed because of miscalculation, so they've induced you to come to them. I think you're in a one-way chaos disposal unit. As I read it, they've got you in a trap that will become increasingly lethal until the chaos potential you represent is utterly destroyed.

"I don't agree, Jaycee. But even if you're right, they've already failed."

What you meanin', Bron?

"A point you and they may have overlooked. I'm not just an individual. Through the transfer link I'm a composite being, a gestalt synthesis of me, you, your computing and communications complex and such characters as Doc, Ander and Ananias. The aliens might destroy me, but the rest of the gestalt remains with all the original knowledge and purpose untouched. Get yourself a new agent and nothing has been lost but a few kilos of replaceable protein. You see, it isn't just me who's the catalyst, but the whole system of which I happen to be a part."

Quit talkin', Bron. I'm turnin' up the audio gain. Sounds like a waterfall or rapids ahead. What's the current like?

"Seems to be pulling harder, but there's not much I can judge it by."

See if you can strike a bank and wedge on it. Accordin' to our instruments, that fall ahead is really vicious.

"How vicious?"

We could be well adrift because we don't know the full range of physical parameters, but we're readin' a probable drop approachin' three kilometers.

"Jaycee—"

Yes?

"Nothing. What are the chances of surviving that?"

If you were a jelly I'd rate the prospect at one percent. However, as a vertebrate—

"Will the suit hold?"

Depends what you hit. Most probably not. Some of the life-support systems won't stand that sort of deceleration anyway.

"Then it should provide a fairly

quick answer as to which of us is right. . ."

He felt a bump. In an agonized reappraisal of the sensations that reached his cocooned form he knew he was in free fall and plunging through a dark hiatus that seemed to be limited only by eternity. From somewhere far below, the angry sound of violently agitated fluids rushed up to meet him. Unashamedly he screamed and, as he continued to fall, the scream became frozen on his lips.

SICK spite of a broken body. . . He felt the slight motion of the wash lifting and falling.

. . .cryin' futility unto a futile wind. . .

The sense of being borne on a moving current down a dark tunnel. Perceptible changes of direction, unseen, felt through some inertial function. The quick lap of the dark stream being echoed spitefully from the pressing span above. And sounds—mucilaginous, coagulating, curdled, clammy sounds. Sounds that chilled the blood.

. . .the mind mazed not by the searin' steel, the nibblin' nerve. . .

Somewhere a glutinous goose sang a solitary anserine hymn through a throat filled with its own life-blood. It was joined by another and yet others in an inhuman anthem distilled from terror and corrodingly bitter reproaches.

Overhead, the pressures of seven hundred million years of evolution leaned against the tunneled rock. His lungs were refusing to accept the tainted, metal-tasting air and he could hear his own sweat dripping about his ears. The inability to feel or move his arms and legs brought him quickly to the verge of hysteria. Another bend and this time he clearly felt the bump against the bank. . .felt the bump. . .on his suit.

"Jaycee—"

Ridin' with you, Bron.

"The fall didn't kill me, then?"

We threw you into catatonic shock. You went down easier that way. Actually it wasn't quite as bad as we thought. The height was broken by a cascade of about seventeen falls. You're about three kilometers deep now and the level is still fallin'. We've got you under conscious anesthesia at the moment because we didn't know how badly you may have been mashed by the falls.

"Lift the anesthesia, Jaycee, I'd like to find out."

A transparent hum filled his head for a moment, then painful feeling flooded into his limbs.

How you feelin', Bron?

"Doubt if I've an unstrained joint anywhere, but nothing seems to be broken."

Apparently the suit was becomin' more rigid as the depth-pressure increased. It's more of a casin' now. Talk about the devil lookin' after his own!

"Can you hear the aliens, Jaycee?"

We've been plottin' sound intensities. Accordin' to our calculations you're goin' to be meetin' them in about seven minutes.

The goose-mutter grew into a vast, brassy braying, a throbbing crescendo of sound that struck back from the tunnel walls in a rippled anacamptic roar. The scolding choir was now so near that he felt he was almost in its midst. Another bump and he knew he had rounded the last of the dreadful bends. This time he was in no dream. There was no possibility of recall from the edge of nightmare.

This was reality.

He felt the stream slacken and heard echoes become attenuated by distance, as though he had entered a larger cavern. And then came light, a dim luminescence, straight glowing bars along level walls—and a sudden terrifying silence.

His back came to rest against an inclined tracery grille in which he found he could catch his heel and force himself up out of the eutectic sluice. He looked about him in dim amazement, warily prepared to meet his persecutors, no matter how terrible their form. But he found he was shockingly alone.

The metallic stream ran between straight and artificial banks, interrupted only by the fret on which he had laboriously climbed. Looking about, he found himself in a vast chamber whose distant and complex walls were covered by a thousand unguessable patterns that might have been either decorative or functional. Tall machines lurked like mute watchers in alcoves, the designs of which were mind-wrenching in the unearthly tenets of their forms. The machines were huge, silent and completely alien to him in purpose and concept. They were frightening in their strangeness.

HE FROZE in horror at a movement from within the ranks of dark and unknown mechanisms. A familiar and plaintive cry rang out and chilled him to the marrow. Alien living shapes, dark in the sparse light, goose-stepped out from some unanticipated place and moved in profiled files—deliberately to the stream to drink.

He watched them curve horny bills incuriously into the metal stream—and just as incuriously waddle past his silent form, protesting some unknown indignity but oblivious to his presence. With mounting horror and increasing comprehension, he watched them go—degenerate, blind, ugly, leathery, alien and completely stupid quasi-aviforms—they nested, fed and presumably bred in this treasurehouse of a lost culture. Even their prehensile hands had atrophied in favor of a broad bill and a long, thrusting neck.

The whole chamber had the feeling of a cathedral—but in honor

of what dead gods? There were a million clues but no answers. Bron realized the irony and incongruity of the announcing choir of voices. Once their hyms had held much meaning. Now their race neared an evolutionary end and their personal complaint had dwindled from cosmic considerations to a local spat about the infrequency of worms. While an alien phonograph had piped something from the pinnacle of their once-held greatness. . .

With returning confidence Bron started to explore. Some of the mechanisms had strange lights playing inside them, the luminescence even yet moving as though to perform some intelligent function even though the whole place was possessed by the stamp of incredible age. One machine, as he approached it, began to speak in a welter of the familiar goose-mutter, but softly, as if its resigned and sibilant speech were now a message of acquiescence, an apology for its previous paeans of hate. He regarded it uneasily, sensing that it was conscious of his presence and knowing that this was the voice that had menaced his dreams and probably directed the attack detail of the alien fleet. Now the machine acknowledged his mastery, but he felt no sense of triumph.

Where are the aliens, Bron?

"The kind we came to meet don't exist any more, Jaycee. They're extinct."

But they attacked us!

"The far ancestors of these creatures did, but they faded and forgot us many millions of years ago. Perhaps there were a few live carcasses in the fleet, but they had long since lost their sense of purpose. Only machines carried out that nearly mindless battle."

How can you be so sure the aliens don't exist?

"Evolution, Jaycee. The fact that they achieved intelligence is a proof that they were evolving organisms. It took only about four million years for man to swing out of the trees and boost himself into space. With the possibility of that rate of progress, have you any idea where a further six hundred and ninety-six million years might take us? One thing is certain, we'll no longer be the dominant Homo sapiens. The same thing will have happened to us as has already happened to these aliens."

I hadn't thought of us that way.

"The development of intelligence is a kind of evolutionary critical reaction. It's unstable. The usefulness of intelligence as a long-term survival factor is questionable. It's probably not valid for much over five million years."

But what about the entropic beacon that brought you here?

"The aliens' ancestors made good machines, Jaycee—designed them to last an eternity, probably not realizing they would have forgotten how to use them long before the machines wore out. It's possible the

beacon was their own deep-space communications link, or perhaps it was set up by some latter-day alien philosopher to invite anyone with the technology and competence to come and partake of the things they left behind. A sort of final memorial. This place—what is it? Some kind of museum designed to demonstrate their technological peak to any life form with the intelligence and the ability to gain admission."

But why did they send the armada and the hellburners?

"That's easily explained. Early in their evolution this place may have been something special to them. Then they read through their version of chaos analysis that one day an alien creature would stand in their special hall and pick it clean like a robber at a grave. Not realizing they would ultimately welcome the approach, they did all in their power to stop it. But whatever they did, that creature still remained, a positive future specter. They didn't know that their own failure—and not we—would destroy them."

You suspected all this before you went into the cavern, didn't you? Jaycee began to read new meanings into Bron's insistence on finding the alien homeworld.

"I knew they couldn't survive their own evolution over such a great period of time. Despite the apparent evidence to the contrary, there couldn't still be a functioning alien menace. Therefore there had to be something else."

And that's the thing you were after?

"Jaycee, these people were technologically far in advance of us in a great many fields. They could engineer molecules in the same way that we engineer machines. They used entropy as competently as we use electromagnetism. Imagine a fusion of their science with ours. Is there anything in the universe that would be denied us?"

And it all belongs to Bron! Jaycee's bitterness etched every syllable with acid.

"That's right, Jaycee. One day I'm coming back with enough men and equipment to open up this place and carry away as much of it as we have the ability to understand."

Someone may go back, Bron, but it won't be you. You've less than three hours' air left in that suit. Do you really think you stand a chance of getting out of there alive?

"Jaycee, there has to be a way out, for the same reason that there was a way in. All I need is sufficient intelligence to find it in time."

ON THE far side of the chamber he chanced upon a vast transparent tank. It was filled with a liquid whose misty blueness was haunting. His attention caught, he studied it more carefully, noting the myriad pinpoints of light that

burned briefly and randomly through the faint haze. Occasionally he detected a slight trail between the flickering events and realized that he was watching an alien analogue of Ander's model of chaos. This was the Rosetta stone that could bridge two completely alien cultures. Its discovery was probably the most potentially important entropic event in history. If he could grasp its use the science of physics would be reborn.

He gazed with fascination into the misty field of the fluid, wondering if this were a model of the actual universe and if it operated in real-time. If so—one of those bright sparks might well represent himself. One particularly bright flare long illuminated a whole corner of the tank, but whether this had significance he would probably never know. He had two-and-a-half hours of air left and no obvious way to get out.

Finding the planet, entering the chamber via the cavern, comprehending the nature of what he had found—all struck Bron as tests to determine the qualifications of those who sought what the chamber contained. The last test was to get out alive. Since he had passed the others it seemed logical to him that, given the right facilities and the right knowledge, the last was also achievable. Except that here his facilities were nil and his knowledge was precariously slight. This test was perhaps designed to measure the assets of the individual and, with his failing air supply, it carried a barbarous time penalty. The aliens were choosing their successors with meticulous care.

He turned away from the tank, confident in the certainty that a way out had to exist. All he had to do was find it. To go back against the stream was impossible. Equally, at a depth of better than three kilometers and with a dwindling supply of air, he had no hope that those he had left on the surface would be able to get down to him in time. Perhaps, after all, this was a one-way disposal unit.

Bron! Jaycee's voice came in with a sudden burst of alarm. *What's Cana doin' with his task force?*

"Exactly what I asked him to, I hope."

Antares reports a Destroyer task force in close orbit. Did you order that?

"Stay off my back, Jaycee. I've got worries enough as it is."

He returned to the study of his problem. The metallic stream moved on beyond the grille and fell smoothly into the bowels of the planet. No escape seemed possible by that route.

Bron. A dozen Destroyer heavy cruisers are enterin' the solar system and Space Defense reports another fifty on the way. Does Cana reckon on attackin' Terra?

Bron ignored her. His searchings had taken him back toward the middle of the chamber. The center-

piece was a broad and featureless pillar rising up to and probably into the solid roof. It was unique among the exhibits in its lack of complexity. In its base was a simple hatch opening internally and the sheer solidity of the tubular walls made him speculate as to what sort of pressures the structure was made to contain.

Bron, will you listen to me, damn you?

"I'm listening, Jaycee."

I know your brand of chaos. I'd recognize it anywhere. Did you order the destruction of the Antares base?

"Not its destruction, Jaycee—only its capture."

I guessed it. But why?

"It handles the transfer link. If I have Antares, Terra has lost control over me."

You won't get away with it, Bron. This is treason and you can't hope to win. The Stellar Commando will beat Cana clean out of space.

"The main Commando fleet is out with Ananias. Try telling that to him."

THE singular simplicity of the pillar set it radically apart from the rest of the mechanisms and he could see now that its central position made it difficult to miss. The contrasts pointed to its enjoying some significance, the recognition of which transcended any mere differences in physiology or origin of knowledge. It was something designed to appeal uniquely to sheer intelligence, however derived.

For the first time since he had entered the cavern Bron permitted himself to smile.

Damn you! Damn you! Jaycee's vehemence cut like a white-hot knife. *You've got this all sewn up, haven't you? Ananias has taken the Commando fleet so far out into the void that we can't contact it by normal FTL radio. Our only chance is by transfer link to the Intelligence Radioship—*

"—and Ananias has control of that." Bron finished the sentence for her. "Let's face it, Jaycee, Terran dominance is finished."

You're goin' to destroy Terra? Her voice rose high with incredulity.

"Quite the contrary. I need her—and the other prime worlds. But in their proper perspective. Not as fumbling imperial powers, but as members of a total union of inhabited planets. It's all part of the agreement between Ananias and Cana. Terra, her Rim Dependencies and the planets of the Destroyer Federation, are going to be welded into one entity. Terra isn't going to like it, but that's the way history has to go. There's too much space to conquer for mankind to be divided."

He turned and entered the shaft, examining the hatch. It had a simple pressure device to hold it shut. If there were alien instructions regarding its use, he could not discern them, but he moved now with

the blind faith that its function was what logic claimed it to be. He closed the hatch behind him.

Immediately a rush of liquid metal swirled about his feet and began to lift and raise him bodily up the shaft. Higher and higher the wave lifted him until he began to think that the shaft was limitless and that by some trick of physics he would continue to rise forever. Only the occasional brush of his suit against the black encasement assured him that he was still moving upward.

Bron, Antares has surrendered and landing parties are being set down. That makes you a traitor. Do you know of any reason why I shouldn't press the murder button?

"If you feel you want to you'll have to be quick, Jaycee. The first task of that landing party is to destroy the transfer-link aerials. But if you fail—do you know what's going to happen? I'll be coming back to Terra specifically for you—and regardless of the cost. I've acquired one hell of an empire, and when the task of running it becomes a little rough—believe me, I'm going to need all the help I can get. Don't tell me the role of First Lady of the Universe is something that doesn't appeal?"

You know what you are, Bron—you're a Godlost egotistical louse.

"I figure that makes us two of a kind, Jaycee. As I begin to recall it, you're sort of damned yourself."

Finally there came a change, almost undetectable among the poor sensations that reached inside the suit. Something akin to an instinct warned him that he had reached his destination. Initially nothing appeared to be different. Then, on searching carefully, he noticed faint points of light overhead. In a shock of reorientation he knew that he was looking at the stars. Somewhere, one of those points of light was the galaxy of the Milky Way and he was floating on his back on a flooding rock-pool of liquid metal under the stillness of an alien night.

He switched on the suit's radio beacon and, while he waited for the pinnace to arrive, looked about at the starry pointers of his new empire. And a woman's sobbing heard from six hundred thousand parsecs reminded him that he was a creature with human weaknesses as well as special strengths. Somehow nothing was ever going to be quite the same again. ●

Dear Mr. Jakobsson:

Having read Miss Hilary Witkin's letter concerning The Mountain Movers *in the October* If *I am obliged to admit that geology is a subject that I know little or nothing about. As a master mariner I am aware that rock is hard and it will put a hole in a ship's side. All that is required of me is that I avoid rocks.*

In extenuation, however, I must say that the driver of the tourist coach in which I traveled to Ayers Rock—the remarkable granite monolith that gave me the inspiration for the story—told his passengers that it was an extrusion. He was not a geologist. None of us was a geologist.

My own theory, advanced at the time, was that Ayers Rock was a huge meteorite that somehow had survived its passage through the atmosphere intact. This would account for its dissimilarity to Mount Connor, to the east, and to Mount Olga, to the west.

Nobody took me seriously. I very much fear that Miss Witkin won't, either.

A. Bertram Chandler
Woollahra, Australia

Dear Editor:

The October issue looked promising enough at first glance—two long novelettes by Keith Laumer and Harry Harrison, two top-flight writers known for their ability to tell a good story, both examples of the kind of action-adventure type of story sf readers are always asking for, both presenting characters the authors have written about before. Both stories, unfortunately, turned out to be disappointing.

I have been reading Keith Laumer almost since he first began writing and have enjoyed most of his stories, including the many adventures of Retief. However, enough is enough! The All-Together Planet *was a bad novel.*

CORRECTION—In *The Gods Themselves* (jointly published by *IF* and *GALAXY*), the sentence beginning on the 12th line from the bottom, left column, on page 20 of *GALAXY* March 1972, should have read: *But with every atomic nucleus of plutonium-186 sent to us, our Universe ends up with twenty fewer electrons.*
—THE EDITORS

I still admire Laumer when he is at the top of his form as he was in the June issue when you published The Right To Revolt/The Right To Resist, *but Retief has led a long and honorable life—can't he be retired?*

As for The Stainless Steel Rat Saves The World, *it was a shoddy novel written at the bottom of Harrison's form and a complete bore from beginning to end. I have nothing against the well told action type of story, but feeble stories like this only hurt their author's reputations. I hope you are not trying to turn Slippery Jim deGriz into another series character along the lines of James Retief—if so, please forget them.*

Patrick Swift
Bronx, N. Y.

Dear Mr. Jakobsson:

Although I have been an avid reader of science fiction for many years, my literary abilities incline me more toward poetry than the fictional art form. This being so, I will never be able to enter your forum as a writer but, as a poet, I would like to venture my opinion, in all modesty, of what the condition of the planet earth will be by the year 2000.

Isn't it about time we all realized that the planet earth in the year 2000 will be exactly what we, as Men, made it—or failed to make it?

The winds of our Beings flow once from womb to tomb, and we, as individuals and as a race of beings, have the opportunity to make our mark upon the All. No doubt there are other sentient races in the universe, and no doubt some of them blew themselves to hell and some of them evolved the ethical systems to control technology and are now exploring the universe.

Which will be the fate of the race of Men? I believe it could be summed up in one couplet: Alternatives . . .

Forsake ego's ugly guise;
Or before the Infinite
in ashes lie!

Richard Palmer
Pittsburgh, Pa.

Starting in the next issue of *If* will be a new two-part serial, *The Book of Rack The Healer*, by Zach Hughes, a strong newcomer to these pages. It deals with Earth's tomorrows with powerful impact—and more than touches on poetry in both its prose and content.

—JAKOBSSON

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