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FREDERIK POHL's THE SECOND IF READER OF SCIENCE FICTION

Ten of the best from
this Hugo-winning s-f magazine
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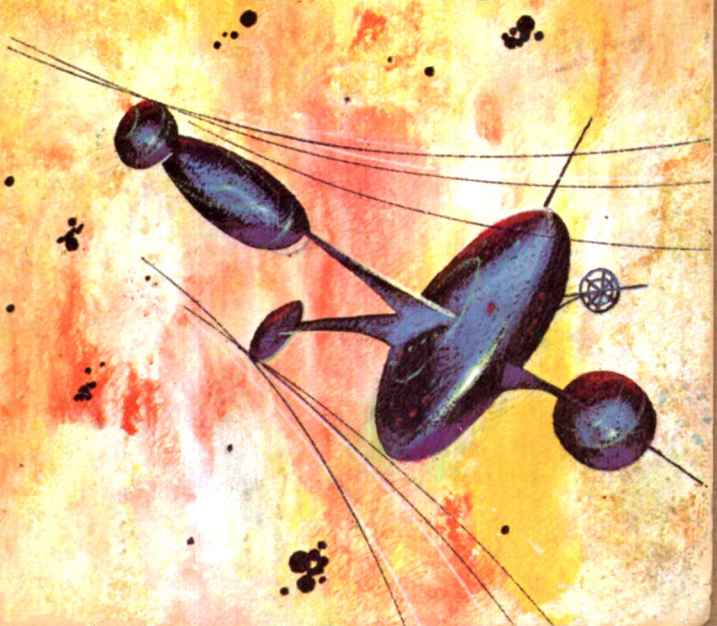

Introduction

by Frederik Pohl

The mistake you must never make about science fiction is in thinking that, because it is about the future, it is necessarily about *the* future.

This is a distinction science-fiction writers are sometimes reluctant to make. After all, we have a vested interest in prediction—we've all said so many times that science fiction has successfully anticipated the real world in describing rockets, television, radar, atomic energy, and just about everything else that's come out of technology's magic cornucopia in the past half century that we like to keep our reputation as successful prophets.

But in fact, for every prophecy that's come true we must have made a dozen or more that fell flat on their faces. Especially in social matters. Especially in that aspect of technology that really matters to us—the interface where science meets, and reacts with, the world we all live in.

The thing to remember is that science fiction should not be judged by how accurately it portrays *the* future, but by how lucidly, and entertainingly, it describes for you the possible varieties of future that lie within our grasp.

The prediction of gadgets is a part of this, to be sure. But it is only the smallest part. What is

more important in a real sense, and what is a lot more fun, is the detailed imagination of the skilled science-fiction writer at work, building a future universe for you—and setting it up next to a whole spectrum of other possible universes in the same issue, or anthology, or group of stories, so that you can choose among them the kind of future *you* like best.

The authors represented here work at that trade and, as you can see, they're good at it. No two of their universes are compatible, to be sure. Fred Saberhagen's blindly malevolent Berserkers would make mincemeat out of Hal Clement's thoughtful and resourceful interstellar survey party; the Mars of *Under Two Moons* doesn't belong in the same solar system as the Mars of *The Time-Tombs*—or, for that matter, as the Venus of *Die, Shadow!* Nivens' galaxy is a huge fused bomb, going off from the center out; Laumer's is fixed as to stars and planets, highly explosive as to people—both human and nonhuman varieties of same.

But we think there's one thing you'll find in common in all these stories. We think they're all fun to read, and maybe even capable of expanding your mental horizons if you give them half a chance.

After all . . . *If* has won the Hugo as the world's leading science-fiction magazine for two years running. It isn't the personality of the editor that did it. It's the stories—and here are ten of the best!

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THE SECOND IF READER OF SCIENCE FICTION

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IN THE ARENA

by Brian W. Aldiss

The reek and noise at the back of the circus were familiar to Javlin Bartramm. He felt the hard network of nerves in his solar plexus tighten.

There were crowds of the reduls here, jostling and staring to see the day's entry arrive. You didn't have to pay to stand and rubberneck in the street; this lot probably couldn't afford seats for the arena. Javlin looked away from them in scorn. All the same, he felt some gratification when they sent up a cheeping cheer at the sight of him. They loved a human victim.

His keeper undid the cart door and led him out, still chained. They went through the entrance, from blinding sunshine to dark, into the damp unsavory warren below the main stadium. Several reduls were moving about here, officials mainly. One or two called good luck to him; one chirped, "The crowd's in a good mood today, vertebrate." Javlin showed no response.

His trainer, Ik So Baar, came up, a flamboyant redul towering above Javlin. He wore an array of spare gloves strapped across his orange belly. The white tiara that fitted round his antennae appeared only on sports days.

"Greetings, Javlin. You look in the rudest of health. I'm glad you are not fighting me."

"Greetings, Ik So." He slipped the lip-whistle into his

mouth so that he could answer in a fair approximation of the redul language. "Is my opponent ready to be slain? Remember I go free if I win this bout—it will be my twelfth victory in succession."

"There's been a change in the program, Javlin. Your Sirian opponent escaped in the night and had to be killed. You are entered in a double double."

Javlin wrenched at his chains so hard that the keeper was swung off balance.

"Ik So! You betray me! How much cajsh have I won for you? I will not fight a double double."

There was no change of expression on the insect mask.

"Then you will die, my pet vertebrate. The new arrangement is not my idea. You know by now that I get more cajsh for having you in a solo. Double double it has to be. These are my orders. Keeper, Cell 107 with him!"

Fighting against his keeper's pull, Javlin cried, "I've got some rights, Ik So. I demand to see the arena promoter."

"Pipe down, you stupid vertebrate! You have to do what you're ordered. I told you it wasn't my fault."

"Well, for God's sake, who am I fighting with?"

"You will be shackled to a fellow from the farms. He's had one or two preliminary bouts; they say he's good."

"From the farms ." Javlin broke into the filthiest redulian oaths he knew. Ik So came back towards him and slipped one of the metal gloves on to his forepincers; it gave him a cruel tearing weapon with a multitude of barbs. He held it up to Javlin's face.

"Don't use that language to me, my mammalian friend. Humans from the farms or from space, what's the difference? This young fellow will fight well enough if you muck in with him. And you'd better muck in. You're billed to battle against a couple of yillibeeth."

Before Javlin could answer, the tall figure turned and strode down the corridor, moving twice as fast as a man could walk.

Javlin let himself be led to Cell 107. The warder, a worker-redul with a gray belly, unlocked his chains and pushed him in, barring the door behind him. The cell smelt of alien species and apprehensions.

Javlin went and sat down on the bench. He needed to think.

He knew himself for a simple man—and knew that that knowledge meant the simplicity was relative. But his five years of captivity here under the reduls had not been all wasted. Ik So had trained him well in the arts of survival; and when you came down to brass tacks, there was no more proper pleasure in the universe than surviving. It was uncomplicated. It carried no responsibilities to anyone but yourself.

That was what he hated about the double double events, which till now he had always been lucky enough to avoid. They carried a responsibility to your fellow fighter.

From the beginning he had been well equipped to survive the gladiatorial routine. When his scoutship, the *Plunderhorse,* had been captured by redul forces five years ago, Javlin Bartramm was duelling master and judo expert, as well as Top Armament Sergeant. The army ships had a long tradition, going back some six centuries, of sport aboard; it provided the ideal mixture of time-passer and needed exercise. Of all the members of the *Plunderhorse*'s crew who had been taken captive, Javlin was—as far as he knew—the only survivor after five years of the insect race's rough games.

Luck had played its part in his survival. He had liked Ik So Baar. Liking was a strange thing to feel for

a nine-foot armored grasshopper with forearms like a lobster and a walk like a tyrannosaurus's run, but a sympathy existed between them—and would continue to exist until he was killed in the ring, Javlin thought. With his bottom on the cold bench, he knew that Ik So would not betray him into a double double. The redul had had to obey the promoter's orders. Ik So needed his twelfth victory, so that he could free Javlin to help him train the other species down at the gladiatorial farm. Both of them knew that would be an effective partnership.

So. Now was the time for luck to be with Javlin again.

He sank on to his knees and looked down at the stone, brought his forehead down on to it, gazed down into the earth, into the cold ground, the warm rocks, the molten core, trying to visualize each, to draw from them attributes that would help him: cold for his brain, warm for his temper, molten for his energies.

Strengthened by prayer, he stood up. The redul workers had yet to bring him his armor and the partner he was to fight with. He had long since learnt the ability to wait without resenting waiting. With professional care, he exercised himself slowly, checking the proper function of each muscle. As he did so, he heard the crowds cheer in the arena. He turned to peer out of the cell's further door, an affair of tightly set bars that allowed a narrow view of the combat area and the stands beyond.

There was a centaur out there in the sunlight, fighting an Aldebaran bat-leopard. The centaur wore no armor but an iron cuirass; he had no weapons but his hooves and his hands. The bat-leopard, though its wings were clipped to prevent it flying out of the stadium, had dangerous claws and a great turn of speed. Only because its tongue had been cut out, ruining its echo-location

system, was the contest anything like fair. The concept of fairness was lost upon the reduls, though; they preferred blood to justice.

Javlin saw the kill. The centaur, a gallant creature with a humanlike head and an immense gold mane that began from his eyebrows, was plainly tiring. He eluded the bat-leopard as it swooped down on him, wheeling quickly round on his hind legs and trampling on its wing. But the bat-leopard turned and raked the other's legs with a slash of claws. The centaur toppled hamstrung to the ground. As he fell, he lashed out savagely with his forelegs, but the bat-leopard nipped in and tore his throat from side to side above the cuirass. It then dragged itself away under its mottled wings, like a lame prima donna dressed in a leather cape.

The centaur struggled and lay still, as if the weight of whistling cheers that rose from the audience bore him down. Through the narrow bars, Javlin saw the throat bleed and the lungs heave as the defeated one sprawled in the dust.

"What do you dream of, dying there in the sun?" Javlin asked.

He turned away from the sight and the question. He sat quietly down on the bench and folded his arms.

When the din outside told him that the next bout had begun, the passage door opened and a young human was pushed in. Javlin did not need telling that this was to be his partner in the double double against the yillibeeth.

It was a girl.

"You're Javlin?" she said. "I know of you. My name's Awn."

He kept himself under control, his brows drawn together as he stared at her.

"You know what you're here for?"

"This will be my first public fight," she said.

Her hair was clipped short as a man's. Her skin was tanned and harsh, her left arm bore a gruesome scar. She held herself lithely on her feet. Though her body looked lean and hard, even the thick one-piece gown she wore to thigh length did not conceal the feminine curves of her body. She was not pretty, but Javlin had to admire the set of her mouth and her cool gray gaze.

"I've had some stinking news this morning, but Ik So Baar never broke it to me that I was to be saddled with a woman," he said.

"Ik probably didn't know—that I'm a woman, I mean. The reduls are either neuter or hermaphrodite, unless they happen to be a rare queen. Didn't you know that? They can't tell the difference between human male and female."

He spat. "You can't tell me anything about reduls."

She spat. "If you knew, why blame me? You don't think I like being here? You don't think I asked to join the great Javlin?"

Without answering he bent and began to massage the muscles of his calf. Since he occupied the middle of the bench, the girl remained standing. She watched him steadily. When he looked up again, she asked, "What or who are we fighting?"

No surprise was left in him. "They didn't tell you?"

"I've only just been pushed into this double double, as I imagine you have. I asked you, what are we fighting?"

"Just a couple of yillibeeths."

He injected unconcern into his voice to make the shock of what he said the greater. He massaged the muscles of the other calf. An aphrohale would have come in very welcome now. These crazy insects had

no equivalent of the terrestrial prisoner-ate-a-hearty-breakfast routine. When he glanced up under his eyebrows, the girl still stood motionless, but her face had gone pale.

"Know what the yillibeeths are, little girl?"

She didn't answer, so he went on, "The reduls resemble some terrestrial insects. They go through several stages of development, you know; reduls are just the final adult stage. Their larval stage is rather like the larval stage of the dragon fly. It's a greedy, omnivorous beast. It's aquatic and it's big. It's armored. It's called a yillibeeth. That's what we are going to be tied together to fight, a couple of big hungry yillibeeth. Are you feeling like dying this morning, Awn?"

Instead of answering, she turned her head away and brought a hand up to her mouth.

"Oh, no! No crying in here, for Earth's sake!" he said. He got up, yelled through the passage door, "Ik So, Ik So, you traitor, get this bloody woman out of here!" . . recalled himself, jammed the lip-whistle into his mouth and was about to call again when Awn caught him a backhanded blow across the face.

She faced him like a tiger.

"You creature, you cowardly apology of a man! Do you think I weep for fear? I don't weep. I've lived nineteen years on this damned planet in their damned farms. Would I still be here if I wept? No—but I mourn that you are already defeated, you, the great Javlin!"

He frowned into her blazing face.

"You don't seriously think you make me a good enough match for us to go out there and kill a couple of yillibeeth?"

"Damn your conceit, I'm prepared to try."

"Fagh!" He thrust the lip-whistle into his mouth, and

turned back to the door. She laughed at him bitterly, jeeringly.

"You're a lackey to these insects, aren't you, Javlin? If you could see what a fool you look with that phony beak of yours stuck on your mouth."

He let the instrument drop to the end of its chain. Grasping the bars, he leaned forward against them and looked at her over his shoulder.

"I was trying to get this contest called off."

"Don't tell me you haven't already tried. I have."

To that he had no answer. He went back and sat on the bench. She returned to her corner. They both folded their arms and stared at each other.

"Why don't you look out into the arena instead of glaring at me? You might pick up a few tips." When she did not answer, he said, "I'll tell you what you'll see. You can see the rows of spectators and a box where some sort of bigwig sits. I don't know who the bigwig is. It's never a queen—as far as I can make out, the queens spend their lives underground, turning out eggs at the rate of fifty a second. Not the sort of life Earth royalty would have enjoyed in the old days. Under the bigwig's box there is a red banner with their insect hieroglyphs on. I asked Ik So once what the hieroglyphs said. He told me they meant—well, in a rough translation—*The Greatest Show on Earth.* It's funny, isn't it?"

"You must admit we do make a show."

"No, you miss the point. You see, that used to be the legend of circuses in the old days. But they've adopted it for their own use since they invaded Earth. They're boasting of their conquest."

"And that's funny?"

"In a sort of way. Don't you feel rather ashamed that

this planet which saw the birth of the human race should be overrun by insects?"

"No. The reduls were here before me. I was just born here. Weren't you?"

"No, I wasn't. I was born on Washington IV. It's a lovely planet. There are hundreds of planets out there as fine and varied as Earth once was—but it kind of rankles to think that this insect brood rules Earth."

"If you feel so upset about it, why don't you do something?"

He knotted his fists together. You should start explaining history and economics just before you ran out to be chopped to bits by a big rampant thing with circular saws for hands?

"It would cost mankind too much to reconquer this planet. Too difficult. Too many deaths just for sentiment. And think of all those queens squirting eggs at a rate of knots; humans don't breed that fast. Humanity has learnt to face facts."

She laughed without humor.

"That's good. Why don't you learn to face the fact of me?"

Javlin had nothing to say to that; she would not understand that directly he saw her he knew his hope of keeping his life had died. She was just a liability. Soon he would be dying, panting his juices out into the dust like that game young centaur only it wouldn't be dust.

"We fight in two foot of water," he said. "You know that? The yillibeeth like it. It slows our speed a bit. We might drown instead of having our heads bitten off."

"I can hear someone coming down the corridor. It may be our armor," she said coolly.

"Did you hear what I said?"

"You can't wait to die, Javlin, can you?"

The bars fell away on the outside of the door, and it opened. The keeper stood there. Ik So Baar had not appeared as he usually did. The creature flung in their armor and weapons and retreated, barring the door again behind him. It never ceased to astonish Javlin that those great dumb brutes of workers had intelligence.

He stooped to pick up his uniform. The girl's looked so light and small. He lifted it, looking from it to her.

"Thank you," she said.

"It looks so small and new."

"I shouldn't want anything heavier."

"You've fought in it?"

"Twice." There was no need to ask whether she had won.

"We'd better get the stuff strapped on, then. We shall know when they are getting ready for us; you'll hear the arena being filled with water. They're probably saving us for the main events just before noon."

"I didn't know about the two feet of water."

"Scare you?"

"No. I'm a good swimmer. Swam for fish in the river on the slave farm."

"You caught fish with your bare hands?"

"No, you dive down and stab them with a sharp rock. It takes practice."

It was a remembered pleasure. She'd actually swum in one of Earth's rivers. He caught himself smiling back into her face.

"Ik So's place is in the desert," he said, making his voice cold. "Anyhow, you won't be able to swim in the arena. Two foot of muddy stinking water helps nobody. And you'll be chained on to me with a four-foot length of chain."

"Let's get our armor on, then you'd better tell me all you know. Perhaps we can work out a plan of campaign."

As he picked up the combined breastplate and shoulder guard, Awn untied her belt and lifted her dress over her head. Underneath she wore only a ragged pair of white briefs. She commenced to take those off.

Javlin stared at her with surprise—and pleasure. It had been years since he had been within hailing distance of a woman. This one—yes, this one was a beauty.

"What are you doing that for?" he asked. He hardly recognized his own voice.

"The less we have on the better in that water. Aren't you going to take your clothes off?"

He shook his head. Embarrassed, he fumbled on the rest of his kit. At least she wouldn't look so startling with her breastplate and skirt armor on. He checked his long and short swords, clipping the one into the left belt clip, the other into the right. They were good swords, made by redul armorers to terrestrial specifications. When he turned back to Awn, she was fully accoutered.

Nodding in approval, he offered her a seat on the bench beside him. They clattered against each other and smiled.

Another bout had ended in the arena. The cheers and chirrups drifted through the bars to them.

"I'm sorry you're involved in this," he said with care.

"I was lucky to be involved in it with you." Her voice was not entirely steady, but she controlled it in a minute. "Can't I hear water?"

He had already heard it. An unnatural silence radiated from the great inhuman crowd in the circus as they watched the stuff pour in. It would have great emotional significance for them, no doubt, since they had all lived in water for some years in their previous life stage.

"They have wide-bore hoses," he said. His own voice had an irritating tremor. "The arena fills quite rapidly."

"Let's formulate some sort of plan of attack then. These things, these yillibeeths must have some weaknesses."

"And some strengths! That's what you have to watch for."

"I don't see that. You attack their weak points."

"We shall be too busy looking out for their strong ones. They have long segmented gray bodies—about twenty segments, I think. Each segment is of chitin or something tough. Each segment bears two legs equipped with razor combs. At tail end and top end they have legs that work like sort of buzz saws, cut through anything they touch. And there are their jaws, of course."

The keeper was back. Its antennae flopped through the grating and then it unbolted the door and came in. It bore a length of chain as long as the cell was wide. Javlin and Awn did not resist as it locked them together, fitting the bracelets on to Javlin's right arm and Awn's left.

"So." She stared at the chain. "The yillibeeths don't sound to have many weak points. They could cut through our swords with their buzz saws?"

"Correct."

"Then they could cut through this chain. Get it severed near one of our wrists, and the other has a better long distance weapon than a sword. A blow over the head with the end of the chain won't improve their speed. How fast are they?"

"The buzz saws take up most of their speed. They're nothing like as fast as the reduls. No, you could say they were pretty sluggish in movement. And the fact that the two of them will also be chained together should help us."

"Where are they chained?"

"By the middle legs."

"That gives them a smaller arc of destruction than if they were chained by back or front legs. We are going to slay these beasts yet, Javlin! What a murderous genus it must be to put its offspring in the arena for the public sport."

He laughed.

"Would you feel sentimental about your offspring if you had a million babies?"

"I'll tell you that when I've had the first of them. I mean, if I have the first of them."

He put his hand over hers.

"No if. We'll kill the bloody larvae okay."

"Get the chain severed, the one of us with the longest bit of chain goes in for the nearest head, the other fends off the other brute. Right?"

"Right."

There was a worker redul at the outer door now, the door that led to the arena. He flung it open and stood there with a flaming torch, ready to drive them out if they did not emerge.

"We've—come to it then," she said. Suddenly she clung to him.

"Let's take it at a run, love," he said.

Together, balancing the chain between them, they ran towards the arena. The two yillibeeth were coming out from the far side, wallowing and splashing. The crowd stretched up towards the blue sky of Earth, whistling their heads off. They didn't know what a man and a woman could do in combination. Now they were going to learn.

THE BILLIARD BALL

by Isaac Asimov

I

James Priss—I suppose I ought to say Professor James Priss, though everyone is sure to know who I mean even without the title—always spoke slowly.

I know. I interviewed him often enough. He had the greatest mind since Einstein, but it didn't work quickly. He admitted his slowness often. Maybe it was *because* he had so great a mind that it didn't work quickly.

He would say something in slow abstraction, then he would think, and then he would say something more. Even over trival matters, his giant mind would hover uncertainly, adding a touch here and then another there.

Would the sun rise tomorrow? I can imagine him wondering. What do we mean by "rise"? Can we be certain that tomorrow will come? Is the term "sun" completely unambiguous in this connection?

Add to this habit of speech a bland countenance, rather pale, with no expression except for a general look of uncertainty; gray hair, rather thin, neatly combed; business suits of an invariably conservative cut; and you have what Professor James Priss was—a retiring person, completely lacking in magnetism.

That's why nobody in the world, except myself, could possibly suspect him of being a murderer. And even I am not sure. After all, he *was* slow-thinking; he was *always* slow-thinking. Is it conceivable that at one crucial moment, he managed to think quickly and act at once?

It doesn't matter. Even if he murdered, he got away with it. It is far too late now to try to reverse matters, and I wouldn't succeed in doing so even if I decided to let this be published.

Edward Bloom was Priss's classmate in college, and an associate through circumstance for a generation afterward. They were equal in age and in their propensity for the bachelor life, but opposites in everything else that mattered.

Bloom was a living flash of light; colorful, tall, broad, loud, brash and self-confident. He had a mind that resembled a meteor-strike in the sudden and unexpected way it could seize the essential. He was no theoretician, as Priss was; Bloom had neither the patience for it, nor the capacity to concentrate intense thought upon a single abstract point. He admitted that. He boasted of it.

What he did have was an uncanny way of seeing the application of a theory, of seeing the manner in which it could be put to use. In the cold marble blocks of abstract structure, he could see, without apparent difficulty, the intricate design of a marvelous device. The block would fall apart at his touch and leave the device.

It is a well known story, and not too badly exaggerated at that, that nothing Bloom ever built had failed to work, or to be patentable, or to be profitable. By the time he was 45, he was one of the richest men on Earth.

And if Bloom the Technician were adapted to one particular matter more than anything else, it was to the way of thought of Priss the Theoretician. Bloom's greatest gadgets were built upon Priss's greatest thoughts, and as Bloom grew wealthy and famous, Priss gained phenomenal respect among his colleagues.

Naturally, it was to be expected that when Priss advanced his Two-Field Theory, Bloom would set about at once to build the first practical anti-gravity device.

II

My job was to find human interest in the Two-Field Theory for the subscribers to Tele-News Press, and you get that by trying to deal with human beings and not with abstract ideas. Since my interviewee was Professor Priss, that wasn't easy.

Naturally, I was going to ask about the possibilities of anti-gravity, which interested everyone; and not about the Two-Field Theory, which no one could understand.

"Anti-gravity?" Priss compressed his pale lips and considered. "I'm not entirely sure that it is possible. Or ever will be. I haven't—uh—worked the matter out to my satisfaction. I don't entirely see whether the Two-Field equations would have a finite solution, which they would have to have, of course, if—" And then he went off into a brown study.

I prodded him. "Bloom says he thinks such a device can be built."

Priss nodded. "Well, yes, but I wonder. Ed Bloom has had an amazing knack at seeing the unobvious in the past. He has an unusual mind. It's certainly made him rich enough."

We were sitting in Priss's apartment. Ordinary mid-

dle-class. I couldn't help a quick glance this way and that. Priss was not wealthy.

I don't think he read my mind. He saw me look. And I think it was on *his* mind. He said, "Wealth isn't the usual reward for the pure scientist. Or even a particularly desirable one."

Maybe so, at that, I thought. Priss certainly had his own kind of reward. He was the third person in history to win two Nobel Prizes; and the first to have both of them in the sciences and both of them unshared. You can't complain about that. And if he wasn't rich, neither was he poor.

But he didn't sound like a contented man. Maybe it wasn't Bloom's wealth alone that irked Priss. Maybe it was Bloom's fame among the people of Earth generally; maybe it was the fact that Bloom was a celebrity wherever he went, whereas Priss, outside scientific conventions and faculty clubs, was largely anonymous.

I can't say how much of all this was in my eyes or in the way I wrinkled the creases in my forehead, but Priss went on to say, "But we're friends, you know. We play billiards once or twice a week. I beat him regularly."

(I never published that statement. I checked it with Bloom, who made a long counter-statement that began: "He beat *me* at billiards. That jackass—" and grew increasingly personal thereafter. As a matter of fact, neither one was a novice at billiards. I watched them play once for a short while, after the statement and counter-statement, and both handled the cue with professional aplomb. What's more, both played for blood, and there was no friendship in the game that I could see.)

I said, "Would you care to predict whether Bloom will manage to build an anti-gravity device?"

"You mean would I commit myself to anything?

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But he didn't sound like a contented man. Maybe it wasn't Bloom's wealth alone that irked Priss. Maybe it was Bloom's fame among the people of Earth generally; maybe it was the fact that Bloom was a celebrity wherever he went, whereas Priss, outside scientific conventions and faculty clubs, was largely anonymous.

I can't say how much of all this was in my eyes or in the way I wrinkled the creases in my forehead, but Priss went on to say, "But we're friends, you know. We play billiards once or twice a week. I beat him regularly."

(I never published that statement. I checked it with Bloom, who made a long counter-statement that began: "He beat *me* at billiards. That jackass—" and grew increasingly personal thereafter. As a matter of fact, neither one was a novice at billiards. I watched them play once for a short while, after the statement and counter-statement, and both handled the cue with professional aplomb. What's more, both played for blood, and there was no friendship in the game that I could see.)

I said, "Would you care to predict whether Bloom will manage to build an anti-gravity device?"

"You mean would I commit myself to anything?

Hmm. Well, let's consider, young man. Just what do we mean by anti-gravity? Our conception of gravity is built around Einstein's General Theory of Relativity, which is now a century and a half old but which, within its limits, remains firm. We can picture it—"

I listened politely. I'd heard Priss on the subject before, but if I was to get anything out of him—which wasn't certain—I'd have to let him work his way through in his own way.

"We can picture it," he said, "by imagining the universe to be a flat, thin, super-flexible sheet of untearable rubber. If we picture mass as being associated with weight, as it is on the surface of the Earth, then we would expect a mass, resting upon the rubber sheet, to make an indentation. The greater the mass, the deeper the indentation.

"In the actual universe," he went on, "all sorts of masses exist, and so our rubber sheet must be pictured as riddled with indentations. Any object rolling along the sheet would dip into and out of the indentations it passed, veering and changing direction as it did so. It is this veer and change of direction that we interpret as demonstrating the existence of a force of gravity. If the moving object comes close enough to the center of the indentation and is moving slowly enough, it gets trapped and whirls round and round that indentation. In the absence of friction, it keeps up that whirl forever. In other words, what Isaac Newton interpreted as a force, Albert Einstein interpreted as geometrical distortion."

He paused at this point. He had been speaking fairly fluently—for him—since he was saying something he had said often before. But now he began to pick his way.

He said, "So in trying to produce anti-gravity, we are trying to alter the geometry of the universe. If we carry on our metaphor, we are trying to straighten out the indented rubber sheet. We could imagine ourselves getting under the indenting mass and lifting it upward, supporting it so as to prevent it from making an indentation. If we make the rubber sheet flat in that way, then we create a universe—or at least a portion of the universe—in which gravity doesn't exist. A rolling body would pass the non-indenting mass without altering its direction of travel a bit, and we could interpret this as meaning that the mass was exerting no gravitational force. In order to accomplish this feat, however, we need a mass equivalent to the indenting mass. To produce anti-gravity on Earth in this way, we would have to make use of a mass equal to that of Earth and poise it above our heads, so to speak."

I interrupted him. "But your Two-Field Theory—"

"Exactly. General Relativity does not explain both the gravitational field and the electromagnetic field in a single set of equations. Einstein spent half his life searching for that single set—for a Unified Field Theory —and failed. All who followed Einstein also failed. I, however, began with the assumption that there were two fields that could not be unified and followed the consequences, which I can explain, in part, in terms of the rubber-sheet metaphor."

Now we came to something I wasn't sure I had ever heard before. "How does that go?" I asked.

"Suppose that, instead of trying to lift the indenting mass, we try to stiffen the sheet itself, make it less indentable. It would contract, at least over a small area, and become flatter. Gravity would weaken. And so would mass, for the two are essentially the same phenomenon in terms of the indented universe. If we

could make the rubber sheet completely flat, both gravity and mass would disappear altogether.

"Under the proper conditions, the electromagnetic field could be made to counter the gravitational field and serve to stiffen the indented fabric of the universe. The electromagnetic field is tremendously stronger than the gravitational field, so the former could be made to overcome the latter."

I said, uncertainly, "But you say 'under the proper conditions.' Can those proper conditions you speak of be achieved, Professor?"

"That is what I don't know," said Priss, thoughtfully and slowly. "If the universe were really a rubber sheet, its stiffness would have to reach an infinite value before it could be expected to remain completely flat under an indenting mass. If that is also so in the real universe, then an infinitely intense electromagnetic field would be required, and that would mean anti-gravity would be impossible."

"But Bloom says—"

"Yes, I imagine Bloom thinks a finite field will do, if it can be properly applied. Still, however ingenious he is," and Priss smiled narrowly, "we needn't take him to be infallible. His grasp on theory is quite faulty. He—he never earned his college degree, did you know that?"

I was about to say that I knew that. After all, everyone did. But there was a touch of eagerness in Priss's voice as he said it, and I looked up in time to catch animation in his eye, as though he were delighted to spread that piece of news. So I nodded my head as if I were filing it for future reference.

"Then you would say, Professor Priss," I prodded again, "that Bloom is probably wrong and that anti-gravity is impossible?"

And finally Priss nodded and said, "The gravitational field can be weakened, of course, but if by anti-gravity we mean a true zero-gravity field—no gravity at all over a significant volume of space—then I suspect anti-gravity may turn out to be impossible, despite Bloom."

And I rather had what I wanted.

III

I wasn't able to see Bloom for nearly three months after that, and when I did see him he was in an angry mood.

He had grown angry at once, of course, when the news first broke concerning Priss's statement. He let it be known that Priss would be invited to the eventual display of the anti-gravity device as soon as it was constructed and would even be asked to participate in the demonstration.

Some reporter (not me, unfortunately) caught him between appointments and asked him to elaborate on that, and he said:

"I'll have the device eventually; soon, maybe. And you can be there, and so can anyone else the press would care to have there. And Professor James Priss can be there. He can represent Theoretical Science, and after I have demonstrated anti-gravity, he can adjust his theory to explain it. I'm sure he will know how to make his adjustments in masterly fashion and show exactly why I couldn't possibly have failed. He might do it now and save time, but I suppose he won't."

It was all said very politely, but you could hear the snarl under the rapid flow of words.

Yet he continued his occasional game of billiards with Priss, and when the two met they behaved with complete propriety. One could tell the progress Bloom was

making by their respective attitudes to the press. Bloom grew curt and even snappish, while Priss developed an increasing good humor.

When my umpteenth request for an interview with Bloom was finally accepted, I wondered if perhaps that meant a break in Bloom's quest. I had a little daydream of him announcing final success to *me.*

It didn't work out that way. He met me in his office at Bloom Enterprises in upstate New York. It was a wonderful setting, well away from any populated area, elaborately landscaped, and covering as much ground as a rather large industrial establishment. Edison at his height, two centuries ago, had never been as phenomenally successful as Bloom.

But Bloom was not in a good humor. He came striding in ten minutes late and went snarling past his secretary's desk with the barest nod in my direction. He was wearing a lab coat, unbuttoned.

He threw himself into his chair and said, "I'm sorry if I've kept you waiting, but I didn't have as much time as I had hoped." Bloom was a born showman and knew better than to antagonize the press, but I had the feeling he was having a great deal of difficulty at that moment in adhering to this principle.

I made the obvious guess. "I am given to understand, sir, that your recent tests have been unsuccessful."

"Who told you that?"

"I would say it was general knowledge, Mr. Bloom."

"No, it isn't. Don't say that, young man! There is no general knowledge about what goes on in my laboratories and workshops. You're stating the professor's opinions, aren't you?"

"No, I'm—"

"Of course you are! Aren't you the one to whom he made that statement—that anti-gravity is impossible?"

"He didn't make the statement that flatly."

"He never says anything flatly. But it was flat enough for him. And not as flat as I'll have his damned rubber-sheet universe before I'm finished."

"Then does that mean you're making progress, Mr. Bloom?"

"You know I am," he said with a snap. "Or you should know. Weren't you there at the demonstration last week?"

"Yes, I was."

I judged Bloom to be in trouble, or he wouldn't be mentioning that demonstration. It worked, but it was not a world beater. Between the two poles of a magnet a region of lessened gravity was produced.

It was done very cleverly. A Mossbauer Effect Balance was used to probe the space between the poles. If you've never seen an M-E Balance in action, it consists primarily of a tight monochromatic beam of gamma rays shot down the low-gravity field. The gamma rays change wavelength slightly but measurably under the influence of the gravitational field and if anything happens to alter the intensity of the field, the wavelength-change shifts correspondingly. It is an extremely delicate method for probing a gravitational field, and it worked like a charm. There was no question but that Bloom had lowered gravity.

The trouble was that it had been done before by others. Bloom, to be sure, had made use of circuits that greatly increased the ease with which such an effect had been achieved (his system was typically ingenious and had been duly patented), and he maintained that it was by this method that anti-gravity would become not merely a scientific curiosity but a practical affair with industrial applications.

Perhaps! But it was an incomplete job, and he didn't

usually make a fuss over incompleteness. He wouldn't have done so this time if he didn't have to display *something.*

I said, "It's my impression that what you accomplished at that preliminary demonstration was 0.82 *g,* and better than that was achieved in Brazil last spring."

"That so? Well, calculate the energy input in Brazil and here and then tell me the difference in gravity decrease per kilowatt-hour. You'll be surprised."

"But the point is, can you reach 0 *g;* zero gravity? That's what Professor Priss thinks may be impossible. Everyone agrees that merely lessening the intensity of the field is no great feat."

Bloom's fist clenched. I had the feeling that a key experiment had gone wrong that day and he was annoyed almost past endurance. Bloom hated to be balked by the universe.

He said, "Theoreticians make me sick." He said it in a low, controlled voice, as though he were finally tired of not saying it, and he was going to speak his mind and be damned. "Priss has won two Nobel Prizes for sloshing around a few equations, but what has he done with it? Nothing! I *have* done something with it and I'm going to do more with it, whether Priss likes it or not.

"*I'm* the one people will remember. *I'm* the one who gets the credit. He can keep his damned title and his Prizes and his kudos from the scholars. Listen, I'll tell you what gripes him. Plain old-fashioned jealousy. It kills him that I get what I get for doing. He wants it for *thinking.*

"I said to him once— We play billiards together, you know—"

(It was at this point that I quoted Priss's statement about billiards and got Bloom's counter-statement. I never published either. That was just trivia.)

"We play billiards," said Bloom, when he had cooled down, "and I've won my share of games. We keep things friendly enough, what the hell—college chums and all that—though how he got through I'll never know. He made it in physics, of course; and in math. But he got a bare pass—out of pity, I think—in every humanities course he ever took."

"You did not get your degree, did you, Mr. Bloom?" (That was sheer mischief on my part. I was enjoying his eruption.)

"I quit to go into business, damn it! My academic average, over the three years I attended, was a strong B. Don't imagine anything else, you hear? Hell, by the time Priss got his Ph.D., I was working on my second million."

He went on, clearly irritated. "Anyway, we were playing billiards, and I said to him, 'Jim, the average man will never understand why you get the Nobel Prize when I'm the one who gets the results. Why do you need two? Give me one!' He stood there, chalking up his cue, and then he said in his soft namby-pamby way, 'You have two billion, Ed. Give me one.' So you see, he wants the money."

I said, "I take it you don't mind his getting the honor?"

For a minute, I thought he was going to order me out. But he didn't. He laughed instead, waved his hand in front of him, as though he were erasing something from an invisible blackboard in front of him. "Oh, well, forget it. All that is off the record. Listen, do you want a statement? Okay! Things didn't go right today, and I blew my top a bit, but it will clear up. I think I know what's wrong. And if I don't, I'm going to know.

"Look, you can say that *I* say we *don't* need infinite electromagnetic intensity. We *will* flatten out the rubber sheet. We *will* have zero gravity. And when we get it,

I'll have the damnedest demonstration you ever saw, exclusively for the press and for Priss, and you'll be invited. And you can say it won't be long. Okay?"

I had time after that to see each man once or twice more. I even saw them together when I was present at one of their billiard games. As I said before, both of them were *good.*

But the call to the demonstration did not come as quickly as all that. It arrived six weeks less than a year after Bloom gave me his statement.

And at that, perhaps it was unfair to expect quicker work.

I had a special engraved invitation, with the assurance of a cocktail hour first. Bloom never did things by halves, and he was planning to have a pleased and satisfied group of reporters on hand. There was an arrangement for tri-dimensional TV, too. Bloom felt completely confident, obviously; confident enough to be willing to trust the demonstration in every living room on the planet.

I called up Professor Priss, to make sure he was invited, too. He was!

"Do you plan to attend, sir?"

There was a pause, and the professor's face on the screen was a study in uncertain reluctance. "A demonstration of this sort is most unsuitable where a serious scientific matter is in question. I do not like to encourage such things."

I was afraid he would beg off, and the dramatics of the situation would be greatly lessened if he were not there. But then, perhaps, he decided he dared not play the chicken before the world. With obvious distaste, he said, "Of course, Ed Bloom is not really a scientist, and he must have his day in the sun. I'll be there."

"Do you think Mr. Bloom can produce zero gravity, sir?"

"—uh—Mr. Bloom sent me a copy of the design of his device and—and I'm not certain. Perhaps he can do it, if—uh—he says he can do it. Of course—" he paused again for quite a long time. "I think I would like to see it."

So would I, and so would many others.

The staging was impeccable. A whole floor of the main building at Bloom Enterprises—the one on the hilltop—was cleared. There were the promised cocktails and a splendid array of hors d'oeuvres, soft music and lighting, and a carefully dressed and thoroughly jovial Edward Bloom playing the perfect host, while a number of polite and unobtrusive menials fetched and carried. All was geniality and amazing confidence.

James Priss was late, and I caught Bloom watching the corners of the crowd and beginning to grow a little grim about the edges. Then Priss arrived, dragging a volume of colorlessness in with him, a drabness that was unaffected by the noise and the absolute splendor (no other word would describe it—or else it was the two martinis glowing inside me) that filled the room.

Bloom saw him, and his face was illuminated at once. He bounced across the floor, seizing the smaller man's hand and dragging him to the bar.

"Jim! Glad to see you! What'll you have? Hell, man, I'd have called it off if you hadn't showed. Can't have this thing without the star, you know." He wrung Priss's hand. "It's your theory, you know. We poor mortals can't do a thing without you few, you damned *few* few, pointing the way."

He was being ebullient, handing out the flattery, because he could afford to do so now. He was fattening Priss for the kill.

Priss tried to refuse a drink, with some sort of mutter, but a glass was pressed into his hand; and Bloom raised his voice to a bullroar.

"Gentlemen! A moment's quiet, please. To Professor Priss, the greatest mind since Einstein, two-time Nobel Laureate, father of the Two-Field Theory, and inspirer of the demonstration we are about to see—even if he didn't think it would work and he had the guts to say so publicly."

There was a distinct titter of laughter that quickly faded out, and Priss looked as grim as he could manage.

"But now that Professor Priss is here," said Bloom, "and we've had our toast, let's get on with it. Follow me, gentlemen!"

IV

The demonstration was in a much more elaborate place than had housed the earlier one. This time it was on the top floor of the building. Different magnets were involved—smaller ones, by heaven—but as nearly as I could tell, the same M-E Balance was in place.

One thing was new, however, and it staggered everybody, drawing much more attention than anything else in the room. It was a billiard table, resting under one pole of the magnet. Beneath it was the companion pole. A round hole about a foot across was stamped out of the very center of the table; and it was obvious that the zero-gravity field, if it was to be produced, would be produced through that hole in the center of the billiard table.

It was as though the whole demonstration had been designed, surrealist-fashion, to point up the victory of Bloom over Priss. This was to be another version of

their everlasting billiards competition, and Bloom was going to win.

I don't know if the other newsmen took matters in that fashion, but I think Priss did. I turned to look at him and saw that he was still holding the drink that had been forced into his hand. He rarely drank, I knew, but now he lifted the glass to his lips and emptied it in two swallows. He stared at that billiard ball, and I needed no gift of ESP to realize that he took it as a deliberate snap of fingers under his nose.

Bloom led us to the twenty seats that surrounded three sides of the table, leaving the fourth free as a working area. Priss was carefully escorted to the seat commanding the most convenient view. Priss glanced quickly at the tri-di cameras which were now working. I wondered if he were thinking of leaving but deciding that he couldn't in the full glare of the eyes of the world.

Essentially, the demonstration was simple; it was the production that counted. There were dials in plain view that measured the energy expenditure. There were others that transferred the M-E Balance readings into a position and a size that were visible to all. Everything was arranged for easy tri-di viewing.

Bloom explained each step in a genial way, with one or two pauses in which he turned to Priss for a confirmation that had to come. He didn't do it often enough to make it obvious, but just enough to turn Priss upon the spit of his own torment. From where I sat I could look across the table and see Priss on the other side.

He had the look of a man in Hell.

As we all know, Bloom succeeded. The M-E balance showed the gravitational intensity to be sinking steadily as the electromagnetic field was intensified. There were

cheers, when it dropped below the 0.52 *g* mark. A red line indicated that on the dial.

"The 0.52 *g* mark, as you know," said Bloom, confidently, "represents the previous record low in gravitational intensity. We are now lower than that at a cost in electricity that is less than ten per cent what it cost at the time that mark was set. And we will go lower still."

Bloom (I think deliberately, for the sake of the suspense) slowed the drop toward the end, letting the tridi cameras switch back and forth between the gap in the billiard table and the dial on which the M-E Balance reading was lowering.

Bloom said, suddenly, "Gentlemen, you will find dark goggles in the pouch on the side of each chair. Please put them on now. The zero-gravity field will soon be established, and it will radiate a light rich in ultraviolet."

He put goggles on himself, and there was a momentary rustle as others went on, too.

I think no one breathed during the last minute, when the dial reading dropped to zero and held fast. And just as that happened a cylinder of light sprang into existence from pole to pole through the hole in the billiard table.

There was a ghost of twenty sighs at that. Someone called out, "Mr. Bloom, what is the reason for the light?"

"It's characteristic of the zero-gravity field," said Bloom smoothly, which was no answer of course.

Reporters were standing up now, crowding about the edge of the table. Bloom waved them back. "Please, gentlemen, stand clear!"

Only Priss remained sitting. He seemed lost in thought, and I have been certain ever since that it was the goggles that obscured the possible significance of everything that followed. I didn't see his eyes. I couldn't.

And that meant neither I nor anyone else could even begin to make a guess as to what was going on behind those eyes.

Well, maybe we couldn't have made such a guess, even if the goggles hadn't been there, but who can say?

Bloom was raising his voice again. "Please! The demonstration is not yet over. So far, we've only repeated what I have done before. I have now produced a zero-gravity field and I have shown it can be done practically. But I want to demonstrate something of what such a field can do. What we are going to see next will be something that has never been seen, not even by myself. I have not experimented in this direction, much as I would have liked to, because I have felt that Professor Priss deserved the honor of—"

Priss looked up sharply, "What—what—"

"Professor Priss," said Bloom, smiling broadly, "I would like you to perform the first experiment involving the interaction of a solid object with a zero-gravity field. Notice that the field has been formed in the center of a billiard table. The world knows your phenomenal skill in billiards, Professor, a talent second only to your amazing aptitude in theoretical physics. Won't you send a billiard ball into the zero-gravity volume?"

Eagerly, he was handing a ball and cue to the professor. Priss, his eyes hidden by the goggles, stared at them and only very slowly, very uncertainly, reached out to take them.

I wonder what his eyes were showing. I wonder, too, how much of the decision to have Priss play billiards at the demonstration was due to Bloom's anger at Priss's remark about their periodic game, the remark I had quoted. Had I been, in my way, responsible for what followed?

"Come, stand up, Professor," said Bloom, "and let me have your seat. The show is yours from now on. Go ahead!"

Bloom seated himself and still talked, in a voice that grew more organlike with each moment. "Once Professor Priss sends the ball into the volume of zero-gravity, it will no longer be affected by Earth's gravitational field. It will remain truly motionless while the Earth rotates about its axis and travels about the sun. In this latitude, and at this time of day, I have calculated that the Earth, in its motions, will sink downward. We will move with it, and the ball will stand still. To us it will seem to rise up and away from the Earth's surface. Watch."

Priss seemed to stand in front of the table in frozen paralysis. Was it surprise? Astonishment? I don't know. I'll never know. Did he make a move to interrupt Bloom's little speech, or was he just suffering from an agonized reluctance to play the ignominious part into which he was being forced by his adversary?

Priss turned to the billiard table, looking first at it, then back at Bloom. Every reporter was on his feet, crowding as closely as possible in order to get a good view. Only Bloom himself remained seated, smiling and isolated. (He, of course, was not watching the table, or the balls, or the zero-gravity field. As nearly as I could tell through the goggles, he was watching Priss.)

Priss turned to the table and placed his ball. He was going to be the agent that was to bring final and dramatic triumph to Bloom and make himself—the man who said it couldn't be done—the goat to be mocked forever.

Perhaps he felt there was no way out. Or perhaps—

With a sure stroke of his cue, he set the ball into motion. It was not going quickly, and every eye followed it. It struck the side of the table and caromed. It was

going even slower now as though Priss himself were increasing the suspense and making Bloom's triumph the more dramatic.

I had a perfect view, for I was standing on the side of the table opposite from that where Priss was. I could see the ball moving toward the glitter of the zero-gravity field, and beyond it I could see those portions of the seated Bloom which were not hidden by that glitter.

The ball approached the zero-gravity volume, seemed to hang on the edge for a moment and then was gone, with a streak of light, the sound of a thunder-clap and the sudden smell of burning cloth.

We yelled. We all yelled.

I've seen the scene on television since—along with the rest of the world. I can see myself in the film during that fifteen second period of wild confusion, but I don't really recognize my face.

Fifteen seconds!

And then we discovered Bloom. He was still sitting in the chair, his arms still folded—but there was a hole the size of a billiard ball through left wrist, chest and back. The better part of his heart, as it later turned out under autopsy, had been neatly punched out.

They turned off the device. They called in the police. They dragged off Priss, who was in a state of utter collapse. I wasn't much better off, to tell the truth, and if any reporter then on the scene ever tried to say he remained a cool observer of that scene, then he's a cool liar.

V

It was some months before I got to see Priss again. He had lost some weight but seemed well otherwise, indeed,

there was color in his cheeks and an air of decision about him. He was better dressed than I had ever seen him to be.

He said, "I know what happened *now*. If I had had time to think, I would have known then. But I am a slow thinker, and poor Ed Bloom was so intent on running a great show and doing it so well that he carried me along with him. Naturally, I've been trying to make up for some of the damage I unwittingly caused."

"You can't bring Bloom back to life," I said, soberly.

"No, I can't," he said, just as soberly. "But there's Bloom Enterprises to think of, too. What happened at the demonstration, in full view of the world, was the worst possible advertisement for zero-gravity, and it's important that the story be made clear. That is why *I* have asked to see *you*."

"Yes?"

"If I had been a quicker thinker, I would have known Ed was speaking the purest nonsense, when he said that the billiard ball would slowly rise in the zero-gravity field. It *couldn't* be so! If Bloom hadn't despised theory so, if he hadn't been so intent on being proud of his own ignorance of theory, he'd have known it himself.

"The Earth's motion, after all, isn't the only motion involved, young man. The sun itself moves in a vast orbit about the center of the Milky Way galaxy. And the galaxy moves, too, in some not very clearly defined way. If the billiard ball were subjected to zero gravity, you might think of it as being unaffected by any of these motions and therefore of suddenly falling into a state of absolute rest—when there is no such thing as absolute rest."

Priss shook his head slowly. "The trouble with Ed, I think, was that he was thinking of the kind of zero gravity one gets in a spaceship in free fall, when people

float in mid-air. He expected the ball to float in mid-air. However, in a spaceship, zero gravity is not the result of an absence of gravitation, but merely the result of two objects, a ship and a man within the ship, falling at the same rate, responding to gravity in precisely the same way, so that each is motionless with respect to the other.

"In the zero-gravity field produced by Ed, there was a flattening of the rubber-sheet universe, which means an actual loss of mass. Everything in that field, including molecules of air caught within it, and the billiard ball I pushed into it, was completely massless as long as it remained with it. A completely massless object can move in only one way."

He paused, inviting the question. I asked, "What motion would that be?"

"Motion at the speed of light. Any massless object, such as a neutrino or a photon, must travel at the speed of light as long as it exists. In fact, light moves at that speed only because it is made up of photons. As soon as the billiard ball entered the zero-gravity field and lost its mass, it, too, assumed the speed of light at once and left."

I shook my head. "But didn't it regain its mass as soon as it left the zero-gravity volume?"

"It certainly did, and at once it began to be affected by the gravitational field and to slow up in response to the friction of the air and the top of the billiard table. But imagine how much friction it would take to slow up an object the mass of a billiard ball going at the speed of light. It went through the hundred-mile thickness of our atmosphere in a thousandth of a second, and I doubt that it was slowed more than a few miles a second in doing so; a few miles out of 186,282 of them. On

the way, it scorched the top of the billiard table, broke cleanly through the edge, went through poor Ed and the window too, punching out neat circles, because it had passed through before the neighboring portions of something even as brittle as glass had a chance to split and splinter.

"It is extremely fortunate we were on the top floor of a building set in a countrified area. If we were in the city, it might have passed through a number of buildings and killed a number of people. By now that billiard ball is off in space, far beyond the edge of the solar system, and it will continue to travel so forever, at nearly the speed of light, until it happens to strike an object large enough to stop it. And it will then gouge out a sizable crater."

I played with the notion and was not sure I liked it. "How is that possible? The billiard ball entered the zero-gravity volume almost at a standstill. I saw it. And you say it left with an incredible quantity of kinetic energy. Where did the energy come from?"

Priss shrugged. "It came from nowhere! The law of conservation of energy only holds under the conditions in which general relativity is valid; that is, in an indented rubber-sheet universe. Wherever the indentation is flattened out, general relativity no longer holds, and energy can be created and destroyed freely. That accounts for the radiation along the cylindrical surface of the zero-gravity volume. That radiation, you remember, Bloom did not explain, and, I fear, could not explain. If he had only experimented further first; if he had only not been so foolishly anxious to put on his show—"

"What accounts for the radiation, sir?"

"The molecules of air inside the volume! Each assumes the speed of light and comes smashing outward. They're

only molecules, not billiard balls, so they're stopped, but the kinetic energy of their motion is converted into energetic radiation. It's continuous because new molecules are always drifting in and attaining the speed of light and smashing out."

"Then energy is being created continuously?"

"Exactly. And that is what we must make clear to the public. Anti-gravity is not primarily a device to lift spaceships or to revolutionize mechanical movement. Rather it is the source of an endless supply of free energy, since part of the energy produced can be diverted to maintain the field that keeps that portion of the universe flat. What Ed Bloom invented, without knowing it, was not just anti-gravity, but the first successful perpetual motion machine of the first class—one that manufactures energy out of nothing."

I said, slowly, "Any one of us could have been killed by that billiard ball, is that right, Professor? It might have come out in any direction."

Priss said, "Well, massless photons emerge from any light source at the speed of light in any direction; that's why a candle casts light in all directions. The massless air molecules come out of the zero-gravity volume in all directions, which is why the entire cylinder radiates. But the billiard ball was only one object. It could have come out in any direction, but it had to come out in some one direction, chosen at random, and the chosen direction happened to be the one that caught Ed."

That was it. Everyone knows the consequences. Mankind had free energy and so we have the world we have now. Professor Priss was placed in charge of its development by the board of Bloom Enterprises, and in time he was as rich and famous as ever Edward Bloom

had been. And Priss still has two Nobel Prizes in addition.

Only—

I keep thinking. Photons smash out from a light source in all directions because they are created at the moment and there is no reason for them to move in one direction more than in another. Air molecules come out of a zero-gravity field in all directions because they enter it in all directions.

But what about a single billiard ball, entering a zero-gravity field from one particular direction. Does it come out in the same direction or in any direction?

I've inquired delicately, but theoretical physicists don't seem to be sure, and I can find no record that Bloom Enterprises, which is the only organization working with zero-gravity fields, has ever experimented in the matter. Someone at the organization once told me that the uncertainty principle guarantees the random emergence of an object entering in any direction. But then why don't they try the experiment?

Could it be, then—

Could it be that for once Priss's mind had been working quickly? Could it be that, under the pressure of what Bloom was trying to do to him, Priss had suddenly seen everything. He had been studying the radiation surrounding the zero-gravity volume. He might have realized its cause and been certain of the speed-of-light motion of anything entering the volume.

Why, then, had he said nothing?

One thing is certain. *Nothing* Priss would do at the billiard table could be accidental. He was an expert and the billiard balls did exactly what he wanted them to. I was standing right there. I saw him look at Bloom and then at the table as though he were judging angles.

I watched him hit that ball. I watched it bounce off

the side of the table and move into the zero-gravity volume, heading in one particular direction.

For when Priss sent that ball toward the zero-gravity volume—and the tri-di films bear me out—it was *already* aimed directly at Bloom's heart!

Accident? Coincidence?

Murder?

THE TIME-TOMBS

by J. G. Ballard

I

Usually in the evenings, while Traxel and Bridges drove off into the sand-sea, Shepley and the Old Man would wander among the gutted time-tombs, listening to them splutter faintly in the dying light as they recreated their fading personas, the deep crystal vaults flaring briefly like giant goblets.

Most of the time-tombs on the southern edge of the sand-sea had been stripped centuries earlier. But Shepley liked to saunter through the straggle of half-submerged pavilions, the warm ancient sand playing over his bare feet like wavelets on some endless beach. Alone among the flickering tombs, with the empty husks of the past ten thousand years, he could temporarily forget his nagging sense of failure.

Tonight, however, he would have to forego the walk. Traxel, who was nominally the leader of the group of tomb-robbers, had pointedly warned him at dinner that he must pay his way or leave. For three weeks Shepley

had put off going with Traxel and Bridges, making a series of progressively lamer excuses, and they had begun to get impatient with him. The Old Man they would tolerate, for his vast knowledge of the sand-sea —he had combed the decaying tombs for over forty years and knew every reef and therm-pool like the palm of his hand—and because he was an institution that somehow dignified the lowly calling of tomb-robber, but Shepley had been there for only three months and had nothing to offer except his morose silences and self-hate.

"Tonight, Shepley," Traxel told him firmly in his hard clipped voice, "you must find a tape. We cannot support you indefinitely. Remember, we're all as eager to leave Vergil as you are."

Shepley nodded, watching his reflection in the gold finger bowl. Traxel sat at the head of the tilting table, his high-collared velvet jacket unbuttoned. Surrounded by the battered gold plate filched from the tombs, red wine spilling across the table from Bridges' tankard, he looked more like a Renaissance princeling than a cashiered Ph.D. from Tycho U. Once Traxel had been Professor of Semantics, and Shepley wondered what scandal had brought him to Vergil. Now, like a grave-rat, he hunted the time-tombs with Bridges, selling the tapes to the Psycho-History Museums at a dollar a foot. Shepley found it impossible to come to terms with the tall, aloof man. By contrast Bridges, who was just a thug, had a streak of blunt good humor that made him tolerable, but with Traxel he could never relax. Perhaps his cold laconic manner represented authority, the high-faced, stern-eyed interrogators who still pursued Shepley in his dreams.

Bridges kicked back his chair and lurched away around the table, pounding Shepley across the shoulders.

"You come with us, kid. Tonight we'll find a mega-tape."

Outside, the low-hulled, camouflaged half-track waited in a saddle between two dunes. The old summer palace was sinking slowly below the desert, and the floor of the banqueting hall shelved into the white sand like the deck of a subsiding liner, going down with lights blazing from its staterooms.

"What about you, Doctor?" Traxel asked the Old Man as Bridges swung aboard the half-track and the exhaust kicked out. "It would be a pleasure to have you along." When the Old Man shook his head Traxel turned to Shepley. "Well, are you coming?"

"Not tonight," Shepley demurred hurriedly. "I'll, er, walk down to the tomb-beds later myself."

"Twenty miles?" Traxel reminded him, watching reflectively. "Very well." He zipped up his jacket and strode away towards the half-track. As they moved off he shouted: "Shepley, I meant what I said!"

Shepley watched them disappear among the dunes. Flatly, he repeated: "He means what he says."

The Old Man shrugged, sweeping some sand off the table. "Traxel . . he's a difficult man. What are you going to do?" The note of reproach in his voice was mild, realizing that Shepley's motives were the same as those which had marooned himself on the lost beaches of the sand-sea four decades earlier.

Shepley snapped irritably. "I can't go with him. After five minutes he drains me like a skull. What's the matter with Traxel, why is he here?"

The Old Man stood up, staring out vaguely into the desert. "I can't remember. Everyone has his own reasons. After a while the stories overlap."

They walked out under the proscenium, following the grooves left by the half-track. A mile away, wind-

ing between the last of the lava-lakes which marked the southern shore of the sand-sea, they could just see the vehicle vanishing into the darkness. The old tomb-beds, where Shepley and the Old Man usually walked, lay between them, the pavilions arranged in three lines along a low basaltic ridge. Occasionally a brief flare of light flickered up into the white, bonelike darkness, but most of the tombs were silent.

Shepley stopped, hands falling limply to his sides. "The new beds are by the Lake of Newton, nearly twenty miles away. I can't follow them."

"I shouldn't try," the Old Man rejoined. "There was a big sandstorm last night. The time-wardens will be out in force marking any new tombs uncovered." He chuckled softly to himself. "Traxel and Bridges won't find a foot of tape—they'll be lucky if they're not arrested." He took off his white cotton hat and squinted shrewdly through the dead light, assessing the altered contours of the dunes, then guided Shepley towards the old mono-rail whose southern terminus ended by the tomb-beds. Once it had been used to transport the pavilions from the station on the northern shore of the sand-sea, and a small gyro-car still leaned against the freight platform. "We'll go over to Pascal. Something may have come up, you never know."

Shepley shook his head. "Traxel took me there when I first arrived. They've all been stripped a hundred times."

"Well, we'll have a look." The Old Man plodded on towards the mono-rail, his dirty white suit flapping in the low breeze. Behind them the summer palace—built three centuries earlier by a business tycoon from Ceres—faded into the darkness, the rippling glass tiles in the upper spires merging into the starlight.

Propping the car against the platform, Shepley wound up the gyroscope, then helped the Old Man onto the front seat. He pried off a piece of rusting platform rail and began to punt the car away. Every fifty yards or so they stopped to clear the sand that submerged the track, but slowly they wound off among the dunes and lakes, here and there the onion-shaped cupola of a solitary time-tomb rearing up into the sky beside them, fragments of the crystal casements twinkling in the sand like minuscule stars.

Half an hour later, as they rode down the final long incline towards the Lake of Pascal, Shepley went forward to sit beside the Old Man, who emerged from his private reverie to ask quizzically: "And you, Shepley, why are you here?"

Shepley leaned back, letting the cool air drain the sweat off his face. "Once I tried to kill someone," he explained tersely. "After they cured me I found I wanted to kill myself instead." He reached down to the hand-brake as they gathered speed. "For ten thousand dollars I can go back on probation. Here I thought there would be a free-masonry of sorts. But then you've been kind enough, Doctor."

"Don't worry, we'll get you a winning tape." He leaned forward, shielding his eyes from the stellar glare, gazing down at the little cantonment of gutted time-tombs on the shore of the lake. In all there were about a dozen pavilions, their roofs holed, the group Traxel had shown to Shepley after his arrival when he demonstrated how the vaults were robbed.

"Shepley! Look, lad!"

"Where? I've seen them before, Doctor. They're stripped."

The Old Man pushed him away. "No, you fool, about three hundred yards to the west, in the shadow of the

long ridge where the big dunes have moved. Can you see them now?" He drummed a white fist on Shepley's knee. "You've made it, lad. You won't need to be frightened of Traxel or anyone else now."

Shepley jerked the car to a halt. As he ran ahead of the Old Man towards the escarpment he could see several of the time-tombs glowing along the sky-line, emerging briefly from the dark earth like the tents of some spectral caravan.

II

For ten millennia the Sea of Vergil had served as a burial ground, and the 1,500 square miles of restless sand were estimated to contain over twenty thousand tombs. All but a minute fraction had been stripped by the successive generations of tomb-robbers, and an intact spool of the 17th Dynasty could now be sold to the Psycho-History Museum at Tycho for over 3,000 dollars. For each preceding dynasty, though none older than the 12th had ever been found, there was a bonus.

There were no corpses in the time-tombs, no dusty skeletons. The cyber-architectonic ghosts which haunted them were embalmed in the metallic codes of memory tapes, three-dimensional molecular transcriptions of their living originals, stored among the dunes as a stupendous act of faith, in the hope that one day the physical recreation of the coded personalities would be possible. After five thousand years the attempt had been reluctantly abandoned but out of respect for the tomb-builders their pavilions were left to take their own hazard with time in the Sea of Vergil. Later the tomb-robbers had arrived, as the historians of the new epochs realized the enormous archives that lay waiting for them in this antique limbo. Despite the time-wardens, the

pillaging of the tombs and the illicit traffic in dead souls continued.

"Doctor! Come on! Look at them!"

Shepley plunged wildly up to his knees in the silver-white sand, diving from one pavilion to the next like a frantic puppy.

Smiling to himself, the Old Man climbed slowly up the melting slope, submerged to his waist as the fine crystals poured away around him, feeling for spurs of firmer rock. The cupola of the nearest tomb tilted into the sky, only the top six inches of the casements visible below the overhang. He sat for a moment on the roof, watching Shepley dive about in the darkness, then peered through the casement, brushing away the sand with his hands.

The tomb was intact. Inside he could see the votive light burning over the altar, the hexagonal nave with its inlaid gold floor and drapery, the narrow chancel at the rear which held the memory store. Low tables surrounded the chancel, carrying beaten goblets and gold bowls, token offerings intended to distract any pillager who stumbled upon the tomb.

Shepley came leaping over to him. "Let's get into them, Doctor! What are we waiting for?"

The Old Man looked out over the plain below, at the cluster of stripped tombs by the edge of the lake, at the dark ribbon of the gyro-rail winding away among the hills. The thought of the fortune that lay at his fingertips left him unmoved. For so long now he had lived among the tombs that he had begun to assume something of their ambience of immortality and timelessness, and Shepley's impatience seemed to come out of another dimension. He hated stripping the tombs. Each one robbed represented, not just the final extinction of

a surviving personality, but a diminution of his own sense of eternity. Whenever a new tomb-bed emerged from the sand he felt something within himself momentarily rekindled, not hope, for he was beyond that, but a serene acceptance of the brief span of time left to him.

"Right," he nodded. They began to cleave away the sand piled around the door, Shepley driving it down the slope where it spilled in a white foam over the darker basaltic chips. When the narrow portico was free the Old Man squatted by the time-seal. His fingers cleaned away the crystals embedded between the tabs, then played lightly over them.

Like dry sticks breaking, an ancient voice crackled:

Orion, Betelgeuse, Altair,
What twice-born star shall be my heir,
Doomed again to be the scion—

"Come on, Doctor, this is a quicker way." Shepley put one leg against the door and lunged against it futilely. The Old Man pushed him away. With his mouth close to the seal, he rejoined:

Of Altair, Betelgeuse, Orion.

As the doors accepted this and swung back he murmured: "Don't despise the old rituals. Now, let's see." They paused in the cool, unbreathed air, the votive light throwing a pale ruby glow over the gold drapes parting across the chancel.

The air became curiously hazy and mottled. Within a few seconds it began to vibrate with increasing rapidity, and a succession of vivid colors rippled across the surface of what appeared to be a cone of light projected

from the rear of the chancel. Soon this resolved itself into a three-dimensional image of an elderly man in a blue robe.

Although the image was transparent, the brilliant electric blue of the robe revealing the inadequacies of the projection system, the intensity of the illusion was such that Shepley almost expected the man to speak to them. He was well into his seventies, with a composed, watchful face and thin gray hair, his hands resting quietly in front of him. The edge of the desk was just visible, the proximal arc of the cone enclosing part of a silver inkstand and a small metal trophy. These details, and the spectral bookshelves and paintings which formed the backdrop of the illusion, were of infinite value to the Psycho-History institutes, providing evidence of the earlier civilizations far more reliable than the funerary urns and goblets in the anteroom.

Shepley began to move forward, the definition of the persona fading slightly. A visual relay of the memory store, it would continue to play after the code had been removed, though the induction coils would soon exhaust themselves. Then the tomb would be finally extinct.

Two feet away, the wise unblinking eyes of the long dead magnate stared at him steadily, his seamed forehead like a piece of pink transparent wax. Tentatively, Shepley reached out and plunged his hand into the cone, the myriad vibration patterns racing across his wrist. For a moment he held the dead man's face in his hand, the edge of the desk and the silver inkstand dappling across his sleeve.

Then he stepped forward and walked straight through him into the darkness at the rear of the chancel.

Quickly, following Traxel's instructions, he unbolted the console containing the memory store, lifting out the three heavy drums which held the tape spools. Immedi-

ately the persona began to dim, the edge of the desk and the bookshelves vanishing as the cone contracted. Narrow bands of dead air appeared across it, one, at the level of the man's neck, decapitating him. Lower down the scanner had begun to misfire. The folded hands trembled nervously, and now and then one of his shoulders gave a slight twitch. Shepley stepped through him without looking back.

The Old Man was waiting outside. Shepley dropped the drums onto the sand. "They're heavy," he muttered. Brightening, he added: "There must be over five hundred feet here, Doctor. With the bonus, and all the others as well—" He took the Old Man's arm. "Come on, let's get into the next one."

The Old Man disengaged himself, watching the sputtering persona in the pavilion, the blue light from the dead man's suit pulsing across the sand like a soundless lightning storm.

"Wait a minute, lad, don't run away with yourself." As Shepley began to slide off through the sand, sending further falls down the slope, he added in a firmer voice: "And stop moving all that sand around! These tombs have been hidden here for ten thousand years. Don't undo all the good work, or the wardens will be finding them the first time they go past."

"Or Traxel," Shepley said, sobering quickly. He glanced around the lake below, searching the shadows among the tombs in case anyone was watching them, waiting to seize the treasure.

III

The Old Man left him at the door of the next pavilion, reluctant to watch the tomb being stripped of the last vestige of its already meager claim to immortality.

"This will be our last one tonight," he told Shepley. "You'll never hide all these tapes from Bridges and Traxel."

The furnishings of the tomb differed from the previous one's. Somber black marble panels covered the walls, inscribed with strange goldleaf hieroglyphs, and the inlays in the floor represented stylized astrological symbols, at once eerie and obscure. Shepley leaned against the altar, watching the cone of light reach out towards him from the chancel as the curtains parted. The predominant colors were gold and carmine, mingled with a vivid powdery copper that gradually resolved itself into the huge, harplike headdress of a reclining woman. She lay in the center of what seemed to be a sphere of softly luminous gas, inclined against a massive black catafalque, from the sides of which flared two enormous heraldic wings. The woman's copper hair was swept straight back off her forehead, some five or six feet long, and merged with the plumage of the wings, giving her an impression of tremendous contained speed, like a goddess arrested in a moment of flight in a cornice of some great temple city of the dead.

Her eyes stared forward expressionlessly at Shepley. Her arms and shoulders were bare, and the white skin, like compacted snow, had a brilliant surface sheen, the reflected light glaring against the black base of the catafalque and the long sheathlike gown that swept around her hips to the floor. Her face, like an exquisite porcelain mask, was tilted upward slightly, the hooded, half-closed eyes suggesting that the woman was asleep or dreaming. No background had been provided for the image, but the bowl of luminescence invested the whole persona with immense power and mystery.

Shepley heard the Old Man shuffle up behind him. "Who is she, Doctor? A princess?"

The Old Man shook his head slowly. "You can only guess. I don't know. There are strange treasures in these tombs. Get on with it, we'd best be going."

Shepley hesitated. He started to walk towards the woman on the catafalque, and then felt the enormous upward surge of her flight, the pressure of all the past centuries carried before her brought to a sudden focus in front of him, holding him back like a physical barrier.

"Doctor!" He reached the door just behind the Old Man. "We'll leave this one, there's no hurry!"

The Old Man examined his face shrewdly in the moonlight, the brilliant colors of the persona flickering across Shepley's youthful cheeks. "I know how you feel lad, but remember, the woman doesn't exist, any more than a painting. You'll have to come back for her soon."

Shepley nodded quickly. "I know, but some other night. There's something uncanny about this tomb." He closed the doors behind them, and immediately the huge cone of light shrank back into the chancel, sucking the woman and the catafalque into the darkness. The wind swept across the dunes, throwing a fine spray of sand onto the half-buried cupolas, sighing among the wrecked tombs.

The Old Man made his way down to the mono-rail, and waited for Shepley as he worked for the next hour, slowly covering each of the tombs.

On the Old Man's recommendation he gave Traxel only one of the canisters, containing about 500 feet of tape. As prophesied, the time-wardens had been out in force in the Sea of Newton, and two members of another gang had been caught red-handed. Bridges was in foul temper, but Traxel, as ever self-contained, seemed unworried at the wasted evening.

Straddling the desk in the tilting ballroom, he ex-

amined the drum with interest, complimenting Shepley on his initiative. "Excellent, Shepley. I'm glad you joined us now. Do you mind telling me where you found this?"

Shepley shrugged vaguely, began to mumble something about a secret basement in one of the gutted tombs nearby, but the Old Man cut in: "Don't broadcast it everywhere! Traxel, you shouldn't ask questions like that—he's got his own living to earn."

Traxel smiled, sphinxlike. "Right again, Doctor." He tapped the smooth untarnished case. "In mint condition, and a 15th Dynasty too."

"Tenth!" Shepley claimed indignantly, frightened that Traxel might try to pocket the bonus. The Old Man cursed, and Traxel's eyes gleamed.

"Tenth, is it? I didn't realize there were any 10th Dynasty tombs still intact. You surprise me, Shepley. Obviously you have concealed talents."

Luckily he seemed to assume that the Old Man had been hoarding the tape for years.

Face down in a shallow hollow at the edge of the ridge, Shepley watched the white-hulled sand-car of the time-wardens shunt through the darkness by the old cantonment. Directly below him jutted the spires of the newly discovered tomb-bed, invisible against the dark background of the ridge. The two wardens in the sand-car were more interested in the old tombs; they had spotted the gyrocar lying on its side by the mono-rail, and guessed that the gangs had been working the ruins over again. One of them stood on the running board, flicking a torch into the gutted pavilions. Crossing the mono-rail, the car moved off slowly across the lake to the northwest, a low pall of dust settling behind it.

For a few moments Shepley lay quietly in the slack

darkness, watching the gullies and ravines that led into the lake, then slid down among the pavilions. Brushing away the sand to reveal a square wooden plank, he slipped below it into the portico.

As the golden image of the enchantress loomed out of the black-walled chancel to greet him, the great reptilian wings unfurling around her, he stood behind one of the columns in the nave, fascinated by her strange deathless beauty. At times her vivid luminous face seemed almost repellent, but he had nonetheless seized on the faint possibility of her resurrection. Each night he came, stealing into the tomb where she had lain for ten thousand years, unable to bring himself to interrupt her. The long copper hair streamed behind her like an entrained time-wind, her angled body in flight between two infinitely distant universes, where archetypal beings of superhuman stature glimmered fitfully in their own spontaneously generated light.

Two days later Bridges discovered the remainder of the drums.

"Traxel! Traxel!" he bellowed, racing across the inner courtyard from the entrance to one of the disused bunkers. He bounded into the ballroom and slammed the metal cans onto the computer which Traxel was programming. "Take a look at these—more Tenths! The whole place is crawling with them!"

Traxel weighed the cans idly in his hands, glancing across at Shepley and the Old Man, on lookout duty by the window. "Interesting. Where did you find them?"

Shepley jumped down from the window trestle. "They're mine. The Doctor will confirm it. They run in sequence after the first I gave you a week ago. I was storing them."

Bridges cut back with an oath. "Whaddya mean, stor-

ing them? Is that your personal bunker out there? Since when?" He shoved Shepley away with a broad hand and swung round on Traxel. "Listen, Traxel, those tapes were a fair find, I don't see any tags on them. Every time I bring something in I'm going to have this kid claim it?"

Traxel stood up, adjusting his height so that he overreached Bridges. "Of course, you're right—technically. But we have to work together, don't we? Shepley made a mistake, we'll forgive him this time." He handed the drums to Shepley, Bridges seething with barely controlled indignation. "If I were you, Shepley, I'd get those cashed. Don't worry about flooding the market." As Shepley turned away, sidestepping Bridges, he called him back. "And there are advantages in working together, you know."

He watched Shepley disappear to his room, then turned to survey the huge peeling map of the sand-sea that covered the facing wall.

"You'll have to strip the tombs now," the Old Man told Shepley later. "It's obvious you've stumbled on something, and it won't take Traxel five minutes to discover where."

"Perhaps a little longer," Shepley replied evenly. They stepped out of the shadow of the palace and moved away among the dunes; Bridges and Traxel were watching them from the dining-room table, their figures motionless in the light. "The roofs are almost completely covered now. The next sandstorm should bury them for good."

"Have you entered any of the other tombs?"

Shepley shook his head vigorously. "Believe me, Doctor, I know now why the time-wardens are here. As long as there's a chance of their being resurrected we're committing murder every time we rob a tomb. Even if

it's only one chance in a million it may be all they themselves bargained on. After all, one doesn't commit suicide because the chances of life existing anywhere are virtually nil."

Already he had come to believe that the enchantress might suddenly resurrect herself, step down from the catafalque before his eyes. While a slender possibility existed on her returning to life he felt that he too had a valid foothold in existence, that there was a small element of certainty in what had previously seemed a random and utterly meaningless universe.

IV

As the first dawn light probed through the casements, Shepley turned reluctantly from the nave. He looked back briefly at the glowing persona, suppressing the slight pang of disappointment that the expected metamorphosis had not yet occurred, but relieved to have spent as much time awaiting it as possible.

He made his way down to the old cantonment, steering carefully through the shadows. As he reached the mono-rail—he now made the journey on foot, to prevent Traxel guessing that the cache lay along the route of the rail—he heard the track hum faintly in the cool air. He jumped back behind a low mound, tracing its winding pathway through the dunes.

Suddenly an engine throbbed out behind him, and Traxel's camouflaged half-track appeared over the edge of the ridge. Its front four wheels raced and spun, and the huge vehicle tipped forward and plunged down the incline among the buried tombs, its surging tracks dislodging tons of the fine sand Shepley had so laboriously

pushed by hand up the slope. Immediately several of the pavilions appeared to view, the white dust cascading off their cupolas.

Half-buried in the avalanche they had set off, Traxel and Bridges leapt from the driving cab, pointing to the pavilions and shouting at each other. Shepley darted forward, put his foot up on the mono-rail just as it began to vibrate loudly.

In the distance the gyro-car slowly approached, the Old Man punting it along, hatless and disheveled.

He reached the tomb as Bridges was kicking the door in with a heavy boot, Traxel behind him with a bag full of wrenches.

"Hello, Shepley!" Traxel greeted him gaily. "So this is your treasure trove."

Shepley staggered splay-legged through the sliding sand, brushed past Traxel as glass spattered from the window. He flung himself on Bridges and pulled the big man backwards.

"Bridges, this one's mine! Try any of the others, you can have them all!"

Bridges jerked himself to his feet, staring down angrily at Shepley. Traxel peered suspiciously at the other tombs, their porticos still flooded with sand. "What's so interesting about this one, Shepley?" he asked sardonically. Bridges roared and slammed a boot into the casement, knocking out one of the panels. Shepley dived onto his shoulders, and Bridges snarled and flung him against the wall. Before Shepley could duck he swung a heavy left cross to Shepley's mouth, knocking him back onto the sand with a bloody face.

Traxel roared with amusement as Shepley lay there stunned, then knelt down, sympathetically examining Shepley's face in the light thrown by the expanding persona within the tomb. Bridges whooped with surprise,

gaping like a startled ape at the sumptuous golden mirage of the enchantress.

"How did you find me?" Shepley muttered thickly. "I doubletracked a dozen times."

Traxel smiled. "We didn't follow you, chum. We followed the rail." He pointed down at the silver thread of the metal strip, plainly visible in the dawn light almost ten miles away. "The gyro-car cleaned the rail, it led us straight here. Ah, hello, Doctor," he greeted the Old Man as he climbed the slope and slumped down wearily beside Shepley. "I take it we have you to thank for this discovery. Don't worry, Doctor, I shan't forget you."

"Many thanks," the Old Man said flatly. He helped Shepley to sit up, frowning at his split lips. "Aren't you taking everything too seriously, Traxel? You're becoming crazed with greed. Let the boy have this tomb. There are plenty more."

The patterns of light across the sand dimmed and broke as Bridges plunged through the persona towards the rear of the chancel. Weakly Shepley tried to stand up, but the Old Man held him back. Traxel shrugged. "Too late, Doctor." He looked over his shoulder at the persona, ruefully shaking his head in acknowledgment of its magnificence. "These 10th Dynasty graves are stupendous. But there's something curious about this one."

He was still staring at it reflectively a minute later when Bridges emerged.

"Boy, that was a crazy one, Traxel! For a second I thought it was a dud." He handed the three canisters to Traxel, who weighed two of them in one hand against the other. Bridges added: "Kinda light, aren't they?"

Traxel began to pry them open with a wrench. "Are you certain there are no more in there?"

"Hundred per cent. Have a look yourself."

Two of the cans were empty, the tape spools missing. The third was only half full, a mere three-inch width of tape in its center. Bridges bellowed in pain: "The kid robbed us. I can't believe it!" Traxel waved him away and went over to the Old Man, who was staring in at the now flickering persona. The two men exchanged glances, then nodded slowly in confirmation. With a short laugh Traxel kicked at the can containing the half reel of tape, jerking the spool out onto the sand, where it began to unravel in the quietly moving air. Bridges protested but Traxel shook his head.

"It *is* a dud. Go and have a close look at the image." When Bridges peered at it blankly he explained: "The woman there was dead when the matrices were recorded. She's beautiful all right—as poor Shepley here discovered—but it's all literally skin deep. That's why there's only half a can of data. No nervous system, no musculature or internal organs—just a beautiful golden husk. This is a mortuary tomb. If you resurrected her you'd have an ice-cold corpse on your hands."

"But why?" Bridges rasped. "What's the point?"

Traxel gestured expansively. "It's immortality of a kind. Perhaps she died suddenly, and this was the next best thing. When the Doctor first came here there were a lot of mortuary tombs of young children being found. If I remember he had something of a reputation for always leaving them intact. A typical piece of highbrow sentimentality—giving immortality only to the dead. Agree, Doctor?"

Before the Old Man could reply a voice shouted from below, there was a nearby roaring hiss of an ascending signal rocket and a vivid red star-shell burst over the lake below, spitting incandescent fragments over them. Traxel and Bridges leapt forwards, saw two men in a

sand-car pointing up at them, three more vehicles converging across the lake half a mile away.

"The time-wardens!" Traxel shouted. Bridges picked up the tool bag and the two men raced across the slope towards the half-track, the Old Man hobbling after them. He turned back to wait for Shepley, who was still sitting on the ground where he had fallen, watching the image inside the pavilion.

"Shepley! Come on, lad, pull yourself together! You'll get ten years!"

When Shepley made no reply he reached up to the side of the half-track as Traxel reversed it expertly out of the moraine of sand, let Bridges swing him aboard. "Shepley!" he called again. Traxel hesitated, then roared away as a second star-shell exploded.

Shepley tried to reach the tape, but the stampeding feet had severed it at several points, and the loose ends, which he had numbly thought of trying to reinsert into the projector, now fluttered around him in the sand. Below, he could hear the sounds of flight and pursuit, the warning crack of a rifle, engines baying and plunging, as Traxel eluded the time-wardens, but he kept his eyes fixed on the image within the tomb. Already it had begun to fragment, fading against the mounting sunlight. Getting slowly to his feet, he entered the tomb and closed the battered doors.

Still magnificent upon her bier, the enchantress lay back between the great wings. Motionless for so long, she had at last been galvanized into life, and a jerking syncopated rhythm rippled through her body. The wings shook uneasily, and a series of tremors disturbed the base of the catafalque, so that the woman's feet danced an exquisitely flickering minute, the toes darting from side to side with untiring speed. Higher up, her

wide smooth hips jostled each other in a jaunty mock tango.

He watched until only the face remained, a few disconnected traces of the wings and catafalque jerking faintly in the darkness, then made his way out of the tomb.

Outside, in the cool morning light, the time-wardens were waiting for him, hands on the hips of their white uniforms. One was holding the empty canisters, turning the fluttering strands of tape over with his foot as they drifted away.

The other took Shepley's arm and steered him down to the car.

"Traxel's gang," he said to the driver. "This must be a new recruit." He glanced dourly at the blood around Shepley's mouth. "Looks as if they've been fighting over the spoils."

The driver pointed to the three drums. "Stripped?"

The man carrying them nodded. "All three. And they were 10th Dynasty." He shackled Shepley's wrists to the dashboard. "Too bad, son, you'll be doing ten yourself soon. It'll seem like ten thousand."

"Unless it was a dud," the driver rejoined, eyeing Shepley with some sympathy. "You know, one of those freak mortuary tombs."

Shepley straightened his bruised mouth. "It wasn't," he said firmly.

The driver glanced warningly at the other wardens. "What about the tape blowing away up there?"

Shepley looked up at the tomb spluttering faintly below the ridge, its light almost gone. "That's just the persona," he said. "The empty skin."

As the engine surged forward he listened to the three empty drums hit the floor behind the seat.

DIE, SHADOW!

by Algis Budrys

I

I've come a long, long way to die alone, David Greaves thought as *Defiance* tumbled through the misty shroud of Venus, hopelessly torn apart by the explosion in her engines. On the console in front of him, the altimeter was one of the last few meaningful instruments, and it told him there were only a few tortured miles remaining before the ship he had brought this far—had spent his fortune in building when no government would yet consider risking a manned rocket on his flight—would smash down to its doom on a planet no man had ever walked.

Battered and tossed in his seat by the ship's crazy tumbling, Greaves tensed the oak-hard muscles of his arms and thrust himself up to his feet. He wasn't dead yet. He wasn't dead and, if the slim chance paid off, he'd still be present to laugh in the government's face when the first, safe, cautious official venture finally made its way across the emptiness between Earth and the Sun's second planet.

Dragging himself from handhold to handhold, his

tendons cracking with the strain, he levered himself toward the Crash Capsule, forced open its hatch and pulled himself through, while the winds of Venus tore at the shattered hull and the scream of *Defiance*'s passage through the murky sky rose to a savage howl.

Outside the cloud-lashed hull there were no stars. Below, no one knew what sort of jungle, or sea, or desert of whipping poison sand might lie in wait. Greaves had not cared when he set out, and did not care now. If men had always waited to be sure, if all the adventurers of mankind had waited until the signposts had gone up, the cave bears would still be the dominant form of life on Earth, and races undreamed of might never know such a thing as man to contest their sway over the Universe.

I'll live to see my share of that, Greaves thought as he pulled the capsule's hatch shut and dropped into the special padding that, in theory, would cushion much of the impact. *Or else I'll know I tried.* He tripped the lever that would flood the capsule with Doctor Eckstrom's special anesthetic—the experimental compound that might—just barely, might—offer a chance.

As the hiss of the yellow-tinged, acrid gas became louder and louder in his ears, David Greaves thought again of the almost obsessive lengths to which he had gone in making sure that there would be such a thing as the capsule. The entire project—the decision to build the ship, to sacrifice for it the personal fortune he had built up in his meteoric rise from obscurity to being one of the world's most dynamic and certainly youngest industrialists—had been marked by his fanatical persistence and dedication. But that dream had come first, and the fortune second—the sole purpose of his career, from its very beginning when he was only another en-

gineer test pilot, had simply been to accumulate the means so *Defiance* could be built. But the ship had been three-quarters complete when he conceived the idea for the capsule. He could not even now remember exactly when or how he had decided that he must have some device aboard that would protect him from a crash and—here was the vital thing he insisted upon—keep him alive, no matter how injured, no matter how long might be necessary, until rescuers could reach him.

For him to even think in terms of rescuers—of depending on others—was totally uncharacteristic. For him to divert a major portion of his dwindling resources from work on the ship itself, and push toward the elaborate design of the capsule, was, in some lights, again uncharacteristically foolish. But he had done it, and now . . .

. . Now the anesthetic created by the man some said was a medical genius and some said was a quack had flooded over him.

He could feel the first effect—the calm, the drowsy peace. By the time the *Defiance* smashed into the ground—very soon now—his metabolism would have slowed to a carefully metered rate. It would take hours for his heart to beat once. To him it would seem as if each day was only a few minutes. The jagged nerve-flashes of pain would be only a faraway slow tingle; the blink of an eye would encompass hours of actual time, and he would lie here, safe, asleep, until the hatch was opened and he was taken out into the air, where slowly the effects would wear off.

Meanwhile, there was more than enough gas compressed into the capsule's tanks to keep him perfectly relaxed for a hundred years. The valve—a simple device he had sketched out in five minutes, as if the design had been part of his mind for years—would continue to

meter out the supply at the optimum rate and pressure.

It was only now—perhaps a hundred feet from impact, perhaps only a hundred hairs-breadths—that he suddenly saw the flaw in the design.

He struggled to reach the valve, in a useless reflex, for there would have been nothing he could have done, no matter how much time remained. Then he fell back, a twisted grin on his face. *I've come a long, long way to trap myself,* he laughed in his drowsing mind, as the ship crashed, and the capsule, torn from *Defiance*'s side, rebounded like a cannon shell from Heaven upon the outraged soil of Venus, and the overhead clouds sprang into flamed reflection from the blast of *Defiance*'s end.

In the capsule, the valve controlling the flow from the illogically copious supply of anesthetic snapped off cleanly. David Greaves' lungs jolted to the impact as a century's dosage of the high-pressure gas delivered its one giant hammerblow of sleep Of sleep like death . . .

Of sleep so slow, so majestic, that only the eternally ageless body might testify to life. Of sleep without end, without motion, until . . .

II

The woman—the sensuous ivory-skinned woman with eyes like dark jewels and hair like midnight framing her red-lipped face—kissed him again and then drew back to touch his cheek.

"Wake," she whispered softly. "Wake, sleeper."

David Greaves looked up at her through slowly dawning eyes. The scent of spices was in his nostrils. As the woman's hair brushed his face again, the fragrance increased.

"My name is David Greaves," he said, and looked up at the sky and then around him.

There was now no envelope of cloud to hide the face of this planet from the Sun; no such shroud as had concealed the Venus of his day in dazzling white without and muffled it in somber black within. This sky was ruddy, ruddy with the light of the day's last moments, and the clouds through which the sunset burned were only crayon-strokes of ochre across the orange sky.

He lay in state, facing the sunset, on some sort of black metal couch which supported him on a multitude of sweeping, back-bent arms. Beneath him, a dozen low broad steps of olive-green polished stone led down to a long forum, flagged with the same gold-veined, masterfully fitted paving. Around the court ran a low wall, again of stone; friezed, and burnished to a dull glow. From the wall, tall slim pillars thrust into the air.

And atop each pillar, cast and carved in black metal washed by the lingering light, crouched a monster.

No single artist could have created such a bestiary of gargoyles. Some he could trace in their evolution—the vulpine, the crustacean, the insectile. Fangs and pincers slit the cool, invigorating breeze that flowed over the court. Antennae quivered and hummed in the air, and a myriad legs were poised in tension, forever prepared to leap. Others were beyond any creation he knew of—limbs and wings contorted into shapes that had, undoubtedly, been taken by living things in lives unimaginable to any man. And all of them, imaginable or not, faced toward him forever.

At the foot of each pillar, mounted in a cresset on the wall at its base, burned a torch. And so, when night fell, then the shadows of all these monsters would be cast upward onto the stars, and he would lie sleeping

in the pooled light of the torches, while all around him these creatures stood watch.

How many nights had he lain here? How many centuries to wash the fog of sleep out of every nook and cranny of his lungs, when each breath might take a thousand years—ten thousand?

But he was not done with studying his surroundings. He had heard sound when he turned his head. Now the sound was a rising murmur as he lifted his shoulders to look down the length of the court of monsters toward the far end. There were people there. They had been seated on stone tiers that rose up toward a collonaded temple. There he could see an altar through the open sides and, on that altar, a flame that burned bright and unwinking against the outline of the lowering Sun.

The people were rising to their feet. From them came an open-throated murmur that became a cry of savage joy—of unbearable tension finding release.

"Who are they?" he asked the woman as he sat up and felt his body stretch with power cramped too long, as he squared back his shoulders and peered through the twilight in the court of monsters.

"Your worshippers, David Greaves," she said, standing beside him among the many arms of his couch. "The people whose last hope you are." She added softly: "My name, though you did not ask, is Adelie." She paused. "I, too, am one of your worshippers. Wherever there are human beings, throughout the Universe, you are worshipped."

He looked at her more closely. There was a lift to one black-winged eyebrow that was less reverent than a god might like, though a man could have no quarrel with it. She stood gracefully on sandaled feet, dressed in a single white garment girdled around her waist by a belt made of the same metal in which the monsters

were cast. He saw that the clasp was shaped into a profile of his own face. And he saw from the wear that it showed that it was old—older than she could be, older perhaps than this court. This . . . shrine? He wondered how many priestesses had worn that belt.

How many of *his* priestesses.

He frowned and got down, feeling the touch of the day-warmed stone on his bare feet. He was dressed, he saw, in a black kilt and nothing else. He returned his glance to the worshippers and saw that the men were dressed similarly, and that the women wore flowing, calf-length, translucently light robes like Adelie's.

There was motion at one corner of his eye, and he turned his head sharply to see the arms of the couch sweeping down, folding and bending against its sides. Now he saw that he had been cradled in the arms of a great black metal beast. It crouched atop the dais. Its head was bent supplicatingly, bright oily metal barely visible at the joinings of its mechanical body.

He glanced quickly up at the monsters atop their columns. "Are they all like that?" he asked Adelie.

An old man's gruff voice answered him from the other side of the beast-couch. "They won't spring down to devour you—you needn't be afraid of *that.*" Two men came into view, one old, one young and very slim. The old one rapped the couch with his knuckles. "This tended you in your sleep. It is made in the shape of the most ferocious race that ever rivaled Man. It is now extinct—as are all those others up there, for the same reason."

The thin young man—very pale, very long of limb—stretched his broad, tight mouth into a smile that covered half his face without mirth. "*Not* the most ferocious, Vigil."

"Your kind will learn about that," the old man snapped.

"Not from you and yours," the slim man said lightly.

Greaves turned to Adelie, who waited, poised, while old Vigil and the young man quarreled. "Tell me the situation," Greaves said.

Adelie's lips parted. But the old man interrupted.

"The situation is that you have been awakened needlessly and would best go back to sleep at once. My daughter and these fanatical sheep"—he waved an angry arm at the standing worshippers—"have forced me to permit this. But in fact Humanity neither needs you nor wants you awake."

"Oh, on the contrary," the young man said. "Humanity needs its gods very badly at this hour. But you are only a man, not so?"

Greaves looked from one to the other—the leather-skinned old man with his mop of ringleted white hair, the young one who was human in appearance but somehow claimed some other status. "Who are you two?"

"I am Vigil, your guardian, and this is—"

"I am Mayron of The Shadows," the young man said, and he held himself as carelessly as before, but his face looked directly into Greaves'. "See my eyes."

There was nothing there. Only darkness speckled by pinpoints of light; thick, sooty darkness like oil smoke, and sharp lights that burned through it without illuminating it.

"Mayron that was First of Men," Vigil said bitterly.

"Mayron that is First of Shadows," the empty-skinned thing replied proudly, and began to weep great, black tears that soon emptied it, so that the skin drooped down into a huddle on the pave and a black cloud in the shape of a man stood sparkling in the dusk before Greaves. "Mayron that will again be First of Men, when

all men are shadows. Mayron that is already First of many men. And which of us is a god, David Greaves?"

Adelie's face glowed with excitement. Her red lips were parted breathlessly. The crowd on the tiers had loosed a great, wailing moan, which hung over the court of conquered monsters as the first stars became visible on the far horizon.

Greaves took a deep breath. He could feel his body tensing itself, the muscles rippling, as though his hide needed comfort.

"Which of us is a god, man?" Mayron repeated softly, his voice coming from the entire cloud. "What is it you can do against me, you whose entire virtue rests on doing nothing?"

"That would depend on what was expected of me at this moment," Greaves said.

"This moment?" Mayron chuckled. "At *this* moment, nothing."

"In that case, get out of my court and come back when there's something to do."

Mayron laughed, throwing his head back, the laughter high and insolent. "How like a god! How very like the real thing."

Greaves frowned. "If you were a man, once, you might remember how that feels." But the laugh had bothered him.

"Oh, I remember, I remember. And tomorrow we fight, man." Laughing, Mayron bent and picked up the skin he had discarded. He crumpled it by the waist in one fist, and brandished it negligently at the worshippers. They shrank back with a moan of horror as he strode toward the far wall. At the wall, he flipped the white, fluttering thing over, and as a cloud passed through the stone. Perhaps on the other side he put on

his human form again. Greaves could not tell. The sun was down, and only a little light glowed on the far horizon. The torches guttered in the court of monsters, and the worshippers were hurrying up the steps, out through the temple and away.

III

Greaves, Adelie and Vigil stood beside the beast-couch. "All right," Greaves said. "Now there are things I want to know, and I want no quarrels, Vigil."

"And by what right do you order me around?" the old man growled. "You may be a god to some, but you are not my god."

"You owe it to me, atheist. If I was awakened today, at this pat moment, I could have been awakened before. I wasn't. You kept me asleep, guardian, when I could have been free as any other man. So you owe me."

The old man grunted. "You're brave with Mayron and brave with me. But all men are brave, each in his own way. We need no gods."

"But you have one."

Adelie touched his arm. "You have lived from the beginning of human history. And you were a great hero. That much the legends tell us. You were braver than any man, and for your bravery, you could not die. While other heros conquered the stars and, in their time, died, you lived on. While enemy after enemy was beaten by Man, and the victorious men died, you lived on. The stars and all worlds became ours. Men loved and begat, and men died, but you lived on. It seemed to us that as long as you lived, all men would have something to remember—how great Man is; what the reward of courage can be. It seemed only fitting that we should bring you the trophies of our achievements. It seemed only

right to believe that you had survived to some purpose—that a day would come when Man would need his greatest hero."

"Precisely," Vigil snorted. "Man worships nothing but himself. You were a convenient symbol. It did no harm. It may have done some good. Of course, the chuckleheads took it all literally. And so—thanks to Man's stupid persistence in breeding idiots as well as men with some brains, you, whoever you are, whatever kind of filibustering bravo you actually were, have become the focus of a cult populated by the credulous, the neurotic and those who profit by them. I hope you are grateful for your legacy!"

Greaves looked up at the stars. There were some constellations that might have been the ones he knew, distorted by his transit to another viewpoint . . or by time. He was no astronomer.

I've come a long way, he thought, *and I wonder what the end of it will be.* "Those who profit from the credulous, hmm?" he said to Vigil.

"I am your guardian and I guarded you. As many others have done before me, from various motives. This is not your first court, nor your tenth. The ritual around you is compounded from thousands of years of hogwash, as witness my worshipful daughter who inherits a post from some time when every venturing hero had to have a leman patiently awaiting his return. My duties no doubt were originally medical. But the couch has been attending to that—with some exceptions—for centuries. And you may be assured, Man's history has not been one unbroken triumph, nor his civilization any steady upward climb. But we built while you slumbered. I had thought to prevent your besmirching Man's greatness with your cheap legend."

"Or perhaps he was afraid of the god he denies," Adelie murmured, her eyes glowing warmly.

Greaves looked from her to her father. "So she believes in me and you do not," he said to Vigil. "But it may be you're not entirely sure—and from the looks she gives me, it may be she isn't, either." He grinned crookedly. "Man may have climbed, but I assure you he hasn't changed."

He smiled at the looks on both their faces. Divinity was new to him, but humanity was not. If these two had thought perhaps they had some dull-witted barbarian here—the one for his faith in his faithlessness, the other for her pleasures—it had been time their error was corrected.

"Old man, god or not I have been called out . . whether it pleases you or not. And I won't willingly lay me down to sleep again until *I* think it's time. So you had better tell me what all this is about, or I will blunder around and perhaps break something you're fond of."

Adelie laughed.

Vigil swung his arm sharply toward her. "This—this would-be courtesan was once Mayron's great love, when he was First of us all. Because he could find nothing to conquer for her in all the Universe, he began dabbling beyond it for a worthy prize. And he found it. Oh, he found it, didn't he, my child?"

"Be careful, Father," Adelie spat. "The worshippers follow *me* now that I've wakened him as promised, and you—"

"Quiet," Greaves said mildly. "He was telling me something."

"That I was," Vigil said angrily, while his daughter's look at Greaves was the least sure it had ever been, "and for all the need you have of it, I might as well not.

But if I may say it once and get it said, I can then go to my meal and the two of you will be free to amuse yourselves. Mayron discovered the Shadows, when his machines touched some continuum beyond this one, and the Shadows ate him. But like the fox that lost his tail in the trap and then cozened other foxes with the lie that it was better so and fashionable besides, Mayron made a virtue of his slavery. Those who give themselves up to the Shadows never rest and never hunger. They know no barrier. And no love. No true joy. No noble sorrow. An untailed fox is safe from catching by the tail. A Shadow has no spirit, no humanity, no—soul. But there are always dunderheads. Mayron has them, and down in the city of his down there"—the old man waved a hand at the horizon, but all Greaves could see from where he stood were the glowing tops of what he took to be three fitfully active volcanoes—"he has a city full of dunderheaded Shadows who go to some temple he has built and enter the Shadow chamber to be changed. The admission is easily gained; the price of freedom from human care is humanity."

"And up here," Greaves said, "other dunderheads come to gain what in exchange for what?"

"Gain at least some sort of affirmation at the cost of remaining men!" the old man growled. "If they are simple, at least they are human! And even an intelligent man can see the value in what is embodied here."

"As witness yourself. Yes."

"I didn't want to wake you! We know enough so you could have been awakened centuries ago. But to what purpose? To turn another hooligan loose to upset civilization, and lose the symbol of that precious thing? When Man himself can rescue himself? But, no, *this* one, this superstition-ridden tramp I wish I'd strangled in her

cradle—*she* stirred the worshippers up, she arranged the combat between yourself and Mayron, she—"

"When and where?"

"What?"

"This fight Mayron and you have both spoken of."

"Tomorrow at noon. In the city. But there's no need for it. Tomorrow Mayron dies, and the other Shadows die. You can watch or not—as long as you stay out of the way."

Greaves looked at Adelie. "Your daughter, Vigil, does not look much impressed."

"Impressed! Impressed!" The old man was very nearly dancing with rage. "I'll *show* you! Come with me." Vigil turned without looking back and pattered rapidly down the steps of the dais, his calloused feet slapping indignantly on the time-buffed stones.

Greaves frowned after him. Then he jerked his head to Adelie. "Come on," he said, and they, too, walked quickly down the length of the court of the conquered monsters. And for the first time since their creation the pillared gargoyles did not have to bear the sight of Man.

The scent of Adelie's fragrance was in Greaves' nostrils again as they followed the old man through the temple, past the altar where the eternal flame burned bright enough to sting. He said nothing to her. She volunteered no words of her own. But she walked close enough to brush his thigh with hers. Greaves smiled appreciatively.

Vigil led them to a small chamber in one wing of the temple. He flung open the door with a clatter of bolts in a concealed lock, and pointed inside. "Look—the two of you. It's not just Mayron who can dabble with machines. For every clever man, there is another just as clever."

A gun of green metal was mounted on a pedestal in the center of the chamber. Slim and graceful as a wading bird with one extended leg, it poised atop its mount and sang quietly of power and intent to kill. The friezed walls of the chamber hummed in harmonic response to the idle melody of the gun. Greaves felt his hackles rising unreasonably, and he very nearly growled with outrage at the sight of it.

"Tomorrow at noon," Vigil said in a high, triumphant voice, "the weapon will be swung to point through that window and down upon Mayron's city. And when it is done, there will not be a single Shadow alive down there."

Greaves walked to the window in the chamber's far wall and looked down. But it was dark below; nothing to mark the outlines of a city as cities had been in the time he remembered. The temple apparently stood atop a high hill, with the city in a great valley at its foot, but again all Greaves could see were three glowing mountaintops across the way, and, beyond them, the night sky.

Then suddenly one of the volcanoes flared for an instant, and the few overhead clouds reflected redly down into the valley.

Greaves caught his breath. The city had emerged black and immense, extending for miles, its lightless towers like the spine-bones of a beast half-eaten and rotting in a tidal pool. Then the light was gone, and once again there was nothing visible down there—if the undead beast had chosen to bestir itself and stealthily move on some errand of the night, no one standing here could have known until it was too late.

"So that's the city of the Shadows," Greaves said.

"The city that was once the First City of Man," Vigil said bitterly. "That Mayron has made into an outpost of

Hell. Where no man dares live; where they say that those with Shadows, once they were in sufficient number, dragged women and children into the Chamber of Shadows so that their men, heartbroken, joined them when their Shadow-children returned to plead with them."

"And this gun of yours is going to do what to them?" he asked.

"Kill them."

"I know that. How?" Greaves stared at the old man through narrowing eyes.

"A beam of power, made of the stuff that spins within all things—the pure force of this continuum."

"You mean this thing is some kind of particle emitter —an electron or photon gun?"

"Our science need not concern itself with crudities like names, barbarian. This gun was made as a song or a poem is made—in the mind of a man who dreams weapons where another man might dream bridges . . . and when the gun finds it fruition, tomorrow when Mayron expects no mightier enemy than you, then the beam will sweep that city, and when it stops Mayron's city will be a tomb for empty skins. And Man will build another First City, and those who fled shall have a place again, and—"

"Who built—who *dreamed*—this piece of ironmongery?" Greaves growled. "Who was the poet—you?"

"Yes! Why not? Do you think because I am an old man—"

"A heedlessly spiteful one who hasn't stopped to think."

"Stopped to think! *Look!*" Vigil seized the torch at the doorway and lifted it high. "Did you think I wasn't sure? That the weapon has not been tested?"

Now Greaves could see why the gun sang rather than

rested in quiet patience. A Shadow hung against the far wall, supported by its outstretched arms, its hands sunken wrist-deep in the stone. And though it jerked its legs and struggled feebly to be free, the hands remained trapped. Under the sound of the idling gun, he could distinguish a quiet, thin, whimpering.

Adelie laughed softly to herself.

Vigil crowed: "He cannot move—what little strength remains to him is needed for bare existence . . . if I were to touch that control—

"The weapon is at its lowest setting—it has incomparably more power than that; it has the power of all the Universe in it—and look what it can do when it is barely tapped in to its source of power!"

Greaves rumbled in his throat. Suddenly the gun's song was more than he could stand. He barely seemed to move, but Vigil had time to shout, the outraged cry beginning to echo in the chamber when suddenly there came the snap of rending metal, and a choked stammer from the gun. And then Greaves had the gun in his hands, completely torn from its pedestal. He threw it out into the night in a bright flash of fire that bathed them all in a thunderclap of light. Greaves stared after it, his teeth bared, the horrid sound of his hatred still rumbling within him. When that had dwindled, leaving him with his heavy chest heaving for air, the trapped Shadow had vanished, no doubt to tell Mayron that Humanity's godling had gone insane.

Adelie was very pale. Vigil was trying to speak.

And that from the old man was enough to bring back the first scarlet edge of the fury he had turned on the gun.

"Close your mouth!" Greaves commanded him. "I have to go fight Mayron tomorrow, and I don't want another

word out of you. Go find something useless to do. Adelie, I want a bath, some food and drink. Right now!"

IV

During the night, he asked Adelie: "I'm supposed to fight him with my hands, is that it? Or with simple weapons of some kind? And this will prove to the worshippers all over the Universe or to the Shadows that either my or Mayron's way of life is right?"

"Yes," she said. "And you *are* very strong. I'm sure you will win. I was sure when I suggested it to Mayron. He's so completely confident—I knew I could trick him into it."

Later, he asked her: "Tell me—was there a famous weapon poet in First City?" And he took her hand, not letting go of it. When she asked him, once, hesitantly, why he had broken the gun, he answered honestly: "Because it seemed hateful." And other than that, they said very little to each other during the night, and whatever they did say had about as much truth in it as all the things they had said or he had been told from the first moment of his awakening. He did not sleep. For one thing, he felt no need for it. For another, he was frightened. He did not want to be a Shadow . . .

In the morning he had forgotten fear. Steps led from the temple to a pathway that wound down toward the city. He stood for a moment at their head, with the altar burning behind him, and then stepped out into the morning, with Adelie and Vigil following.

There were people waiting out there. They lined the path, murmuring among themselves. As he strode along they fell in behind him, leaving behind the temporary

shelters they had put up when they fled from the city and took refuge here.

"Sheep," Vigil snorted as he padded through the dust beside Greaves. "All right, *let* them see you brought down. I'll make another gun—if your stupidity hasn't robbed me of the time I need—and then they'll see . . ."

"I'm sure that if I lose today, Mayron will give you all the time you need. Maybe he'll even send that same Shadow poet back to you with whatever story you'll believe this time."

"What—?" Vigil stammered.

"What did he tell you? That he could create the gun for you because he hated the Shadows, even though he was a Shadow? Did he tell you how he remembered how fine it was to be a man? Is *that* the story you believed? You simple, credulous murderer! And you repaid him by testing it on him. As he well suspected you might. It's not only humans who can be brave. Or sacrifice themselves for the ferocity of their race. Or were you too busy taking Humanity's name in vain to ever consider that? *You* never dreamed that gun. Not you—you may be foolish, but you don't hate this Universe."

Vigil was blinking at him. "What—?"

Adelie laughed. "Last night, father. He asked me about weapon posts. There's no use trying to lie out of it."

Greaves smiled at her. "That's right. I asked you, and from that moment on you knew I was cleverer than Mayron thinks. But you never got away to tell him that, did you? You know," he said thoughtfully, "you'd better hope I win today. Mayron won't be too fond of you if I give him any more shocks."

Adelie grinned. "I thought of that. But if you win, he dies. And if you die . . . ?"

"You will have had your glory anyway? You will have engineered the battle of the gods, and dabbled in other

pleasures, too?" Greaves was still smiling, but Adelie's eyes grew wider. "Maybe it'll be that simple, Adelie. But who can tell the minds of gods, hmm?"

And so David Greaves strode into the city of Shadows, followed by a fearful multitude and two badly shaken people. He walked down a broad avenue at whose end something black bulked and glimmered, while things with black-filled eyes stood watching thin-lipped. And as he walked he showed none of his fear.

He stopped at the end of the avenue, with the tall towers looming over him, and stood facing the Temple of Shadows. There was no sign of life in the square black opening that served as a door for the featureless stone block, dark but not as dark as a Shadow.

He threw back his head and called: "Mayron!"

The worshippers huddled around him. Vigil, like them, was throwing anxious looks over his shoulders as the city's Shadows crowded closer.

Adelie murmured: "There he is."

And he was, trotting lightly down the steps, smiling. He wore his human skin as naturally as if it were no more than a cloak, and Greaves had to look hard to see that when he smiled his lips stretched but no teeth showed.

"Well, Man in all your pride. Are you ready?"

"Ready as any man. How do you propose to go about this?"

"Adelie didn't tell you?"

"She told me as much as I asked. I didn't ask much. Could you suggest any way I could have refused the conditions, no matter what they are? That loses the fight right there. Wasn't I supposed to understand that? Do you think politics is a recent invention?"

"Fierce, fierce," Mayron murmured. "Well spoken."

He chuckled. "When I was a man, I would have liked you."

"Get to the business, Mayron."

The Shadow held up his hand. "Not so fast. Perhaps we can arrive at some—"

"Arrive at nothing. Put up or shut up. Vigil no longer has that monstrous gun and there's no point in this for you today. But there is for *me*, and you don't have much time to realize that." He glowered at the Shadow, feeling the rage, feeling the onrush of the bright white exaltation when the body moves too fast for the brain to speak, when what directs the body is the reflex founded on the silent knowledge of the brain's deep layers, where the learning has no words.

Mayron frowned. His head was cocked to one side. If he had had eyes, he would have been peering at Greaves' face. But he said nothing; he had lost the moment, and now Greaves used it.

"You scum," Greaves said, his voice booming through the Temple square for all the Shadows to hear. "A weapon that drains the power of this continuum! You leech—you would have had that doddering old man put all my stars out!"

And now the moment was at its peak, and Greaves screamed with rage, so that the faces of the towers were turned into sounding boards and the shout crackled in the air like thunder. He jumped forward, one sweeping arm tossing Mayron out of his way and flailing for balance, while Greaves sprang into the Temple and charged the Chamber of Shadows.

And now the fear—the great devouring fear that came like fangs in his belly but did not stop him. Now the fear as he burst through the acolytes and into the black, light-shot sphere that quivered at the focus of May-

ron's machine. And he stood there, feeling the suck not of one voracious universe but many—all the universes that had eaten the over-curious Mayron and sent back a Judas goat in his skin to conquer what belonged to Man. Feeling the icy cold, and the energy-hunger that could suck Man's Universe dry and still leave a hunger immeasurable.

But the rage—the rage that came to him, that came to the god uncounted generations of men had made while David Greaves lay sleeping but his deepest mind lay awake, feeling, feeling the faith, knowing the splendor of what Man had done— The rage that could make a god, that could give a creature like David Greaves the power to create, to dream a man—to make a David Greaves who would lie waiting, ready to become a god . . .

That rage went forth.

And in parallel continuums of life unimaginable, the dawn of Apocalypse burst upon suns unnameable and worlds unheard-of—upon all the universes which were the true Shadows. The god who was David Greaves again, when the rage had passed—the image which Man himself had made stood blazing his fury in the Chamber of Shadows, and the Universe of Man was free and safe. But in the place of the Shadows there was no hope, no joy, no place of refuge. Mankind was come forth, and galaxies were dying.

One last snap of the fangs—one moment when the death-spurred Shadows almost had their greatest prize of all—and then it was over. Greaves turned and strode out of the blasted Chamber, and the acolytes cowered, covering their eyes, not yet realizing that once more they had eyes.

David Greaves appeared on the temple steps, and

began walking slowly down, his legs shaking with exhaustion. Adelie watched him coming toward her. Around her, Shadows that had once been men were men again, but at her feet Mayron lay without his skin, and though her father had fled, she did not dare go without learning what the look on David Greaves' face meant for her.

THE FOUNDLING STARS

by Hal Clement

"All right—perfect. You're the most nearly motionless thing in the universe."

Hoey's words were figurative, of course; whether they were accurate or not depended entirely on point of view. Rocco Luisi and his *Ymyrgar* were indeed at rest with respect to Hoey and the *Anfforddus*, after more than four hours of maddening effort, but neither machine was motionless with respect to much else. Both were travelling at about four kilometers a second, roughly galactic northward, with respect to their home port on Rhyddid, seventy-five parsecs away. They were moving at a much greater velocity with respect to the far more distant Solar System. With respect to each other, however, velocity had been whittled down to somewhat less than five centimeters a year.

How long this would last was problematical. An automatic tracker was now on duty in Hoey's ship, trying to hold steady the fringe pattern produced by combining two ultraviolet laser beams, one originating in his own vessel and the other in Luisi's, in one of the most precise interferometers ever made. Since the crafts were about a light-hour apart, however, corrections tended to be late in time and, in spite of a computer's best efforts, erratic in amount and direction.

"Nineteen decimals" had been a proverbial standard of accuracy for well over a century; but achieving it on any but the atomic size and time scale was not yet standard art.

"That seems to be it," Hoey repeated. "That means that you and I stay strapped in our seats, with no more motion than we can help, for the next four hours or so. If either of the instrument platforms on our ships moves more than half a micron with respect to the other, a lot of time and money go down the drain."

"I know—I've had it hammered into me as often and as hard as you have." Luisi's voice was undistorted, and the responses instant, on the medium communicator.

"Sure you have," retorted Hoey, "only a lot of people wonder whether you really believe it."

"Well, it depends on what you mean by believe. I can figure as well as anyone where the center of mass of my ship would go if I stood up; I—"

"I know you can. Your trouble is that you can't believe it would make as much trouble as they say. Just remember that they were even concerned about tidal forces from Cinder over there"—he gestured, rather uselessly, at the grossly misnamed o6e star glaring at them from half a parsec away—"and even went to the trouble of finding a part of this neighborhood where the wind was steady—"

"Right there I break connection. Space is space. You only worry about wind when you're close to a sun, and then it's only a hard-radiation problem."

"True enough, as a rule. The trouble is that the usual run of stellar winds involves a mass density of around ten atoms to the cubic centimeter; here it's a couple of thousand. It turned out that even that much mass wouldn't accelerate the ships seriously unless the relative velocity were very high indeed, but it was some-

thing the planners had to check on. You see what I mean; so stay put. Let's cut the chatter. The sooner the folks in 'Big Boy' can get to work, the sooner we can breathe comfortably. I'll call 'em."

Hoey's finger tensed on a button, replacing the microscopic crystal in the activity field of his communicator with another, whose twin was aboard. "Big Boy"—more formally, the *Holiad*. He spoke without preamble, knowing that someone would be listening.

"We're in position, and my tracker says we're holding. Get the job going while the going's good."

"Right." The answer was terse, but not casual. The speaker, a heavy-set, middle-aged man with an almost fanatically intense stare in his blue eyes, leaned forward over the console in front of him and began punching buttons in an intricate sequence. He paused every second or two to interpret the patterns of light which winked at him from the board. After half a minute or so the pattern became fixed, and he leaned back, more relaxed.

"Program A is running." A younger man, seated at a similar console a few yards away, nodded at the words. At first he did not answer aloud; then he decided to speak, though for several seconds he was obviously trying to make up his mind what to say. It was easy to make the wrong remark to Elvin Toner.

"D'you think we'll get full time out of it?" he ventured at last. "Those pilots are good, but I still wish it had been possible to use robotships for the key stations. A man can't hold still forever."

"So do I." Toner answered without obvious irritation, and his eyes remained fixed on his console, to the younger man's relief. "I also wish," the director went on, "that it were possible to use the medium communicator system

directly for automatic control of such things as distance, so as to get away from light-lag. But until some genius in your generation works out a way to measure the frequency, wavelength, and propagation velocity of medium waves—or at least, furnishes some evidence that a wave phenomenon is involved—we'll have to stick with electromagnetic radiation and, at times, with human beings. You may not like it, but by the time you reach my age you'll have learned to put up with it."

"I hope not," Ledermann couldn't help replying.

"Eh? Why not?" Toner's eyes almost flicked away from his instruments for a moment, but didn't quite.

"I mean that if I learn to put up with inconveniences, it'll be because I haven't been able to figure out anything else to do about them. Who wants to admit that?"

Toner grinned. "Nobody wants to, I suppose, but the honest people do anyway. Hold up; here comes the end of the first minute; any irregularities on your board?"

"Not so far. I don't know what that proves, though; all we are measuring is what's going into the generators. We can't touch what's coming out without changing it—"

"Of course." The older man made a gesture of impatience. "It's some relief, though, to know that things are going in right. I don't know about you, Dick, but Program A is going to be the second longest couple of hours in my life."

"I know," replied Ledermann. It was the first time Toner had ever been so frank about his feelings—even though they were usually quite obvious from other evidence—and certainly the first time the assistant had felt much real sympathy for the director. Since the younger man was not a fast thinker, the remark left him once more unsure of what to say.

As a matter of fact, there was probably nothing to say which would have been just right. Toner, like most

middle-aged men, had developed a pretty firm personal philosophy and a rather rigid set of fundamental beliefs. The present experiment involved very heavily one of those beliefs—one which Ledermann did not share.

Although, the assistant thought as he glanced through one of the *Holiad*'s great view ports, this was a place where it was hard to feel sure and right about anything fundamental.

Space was not dark, though the nebular material which abounds in the Orion spur of the Milky Way system is never very bright even when no planetary atmosphere dims it. Getting closer to an extended light source, of course, doesn't make each square degree look any brighter; it merely increases the number of square degrees. From the *Holiad*'s position, most of the sky is nebula-bright; and to a spaceman, anything resembling a cloud looks wrong in space. In some directions the stars blaze steadily, as they do from Earth's moon; other directions are blacked out by light-years of dust. Some of the dust itself is bright, for 41 Orionis, named "Cinder" by some humorist who had explored the region earlier, is only half a parsec away. Not only does its fierce ultraviolet radiation keep the nebular gases fluorescing, but its visible is quite enough to light up the dust for immense distances. Not counting its emission envelope, Cinder is only about five times the diameter of Sol, which means that it looks like a point from half a parsec away; but that point illuminated the *Holiad* almost as effectively as the full moon illuminates the earth. Several other O and B stars flame in the neighborhood; some look brighter than Venus as seen from Earth, some reveal themselves only by illuminating the surrounding dust clouds, some are invisible in the nebu-

losity. The Orion Spur is one of the cradles of the galaxy.

Unfortunately, the occupants of the cradle are foundlings. The general circumstances surrounding a star's birth are now fairly clear; ships prowling the cloudier regions of the spiral arms have found them in all stages of gestation, from gas and dust clouds half a light-year across and little denser than the interstellar background, through T Tauri variables hot enough to radiate visibly, to the vast population of main-sequence suns whose hydrogen fires are safely alight. Like foundlings, while an entire birth has never been observed in any one case, we know enough to picture the circumstances with some confidence.

Also like foundlings, however, the precise details of a star's conception are somewhat obscure. It has been widely supposed for several decades that random variations in the density of the interstellar medium are the key factor—that the law of chance is the father. Dick Ledermann, young and conservative, had no trouble accepting this view. To him, it was obvious that the random "winds" of space must at times produce a gas concentration so dense that its gravity would override the disruptive tidal force of the rest of the galaxy—override it enough to produce a local potential well able to trap at least the lower energy particles of the cloud.

Elvin Toner, nearly twenty years older, had strong reservations about the potency of unaided statistics. Like anyone with even a modest grounding in physical science, he realized the basically statistical nature of many of the universe's laws; he admitted that a star *could* come into existence by the concatenations of chance which most people took for granted; but he doubted seriously that the random motions of interstellar gas could set up the appropriate conditions often enough

to account for the number of observed stars, even allowing for the fairly impressive lifetime of a star. He felt sure—it was as much an article of faith as the normal scientific belief that there is a natural reason for everything—that some specific, widespread, underlying process was operating to improve the chance of protostar formation.

He was able to prove that some such process was needed to account for the observed star density. Ledermann was able to prove that it was not. Both "proofs" were statistical, using the same "laws" of chance. They differed, of course, in the basic conditions which were assumed. Both sets of conditions were reasonable; the two hypotheses continued to survive because neither could be checked adequately. Elvin Toner had spent thirty years acquiring a professional reputation impressive enough to interest a sufficiently wealthy foundation in doing the checking. And now he had the chance.

It had taken wealth—or its equivalent—and a vast amount of human effort.

The basic check required detailed measurements of the positions, velocities and accelerations of all the particles, as exactly as Heisenberg allowed and as nearly simultaneously as possible, along a range of more than five astronomical units. Since electromagnetic energy had to be used, this meant that the best part of two hours would be needed merely to set up the web of standing waves which was to serve as the "framework" of the battery of measuring instruments, which were themselves force fields.

The basic design of the experiment was standard—even unimaginative. After setting up the wave pattern,

a period would be spent measuring the initial vector quantities of the particles along the range. Fundamentally, the measuring process would be practically instantaneous, but scanning and recording would use up an hour as the chain of reading impulses travelled from the *Ymyrgar* along the wave web to the *Anfforddus*, from which the readings would be transferred by medium crystal to the mother ship.

This was "Program A" which was now in progress. Electromagnetic waves of almost five hundred different frequencies, ranging from the blue part of the visible spectrum to the output of a huge electromagnet fed by an alternating current source with a three-hundred-second period, were propagating away from the *Ymyrgar*, groping their way through the not-quite-empty billion kilometers or so which separated the little tender from her sister. Some of the frequencies had been selected for their ability to interact with the atoms and ions known to occupy the space, some for the fact that they would not. Some would be absorbed and analyzed by the apparatus aboard the *Anfforddus*, some would be reflected back toward their source to create the standing-wave patterns needed for Program B. All would represent a waste of energy if the two tiny ships changed their relative positions by one part in ten billion billion.

Lights on the control consoles aboard the *Holiad* recorded the behavior, microsecond by microsecond, of each separate frequency generator; but the one which Toner never let out of his sight was that which kept track of the interferometer on the *Anfforddus*. This light shone yellow as long as the original pattern of fringes remained unchanged; a one-fringe shift one way would carry it into the red; a similar change in the other would turn it violet. So far, while there had been at times a

suspicion of green or orange in its tint, it had held within the English language limits of yellow.

"I think you can relax a little," remarked Ledermann. "All the general run of disturbances should have had their licks by now; A has been cooking for over half an hour. Unless Hoey or Luisi has a fit, their ships can hardly move enough to make trouble."

"They both had EEG checks before they were hired." Toner was not joining in any levity, yet. "I'm not worried about that possibility."

"Then why not take it easy? Surely you're not worrying about a meteor."

"Well—comet nuclei are found pretty far from suns, but I really wasn't thinking of anything specific. It's just that so little need go wrong to wreck the whole works. Program A isn't so bad, in spite of the precision we need; but when B gets going it will really mean something. I can't keep my mind off that."

Ledermann nodded. Program B was the experiment itself—the check on the Toner hypothesis. In assuming that non-statistical forces existed which tended to start interstellar matter drawing together into protostars, the astronomer had not fallen back on mysticism. He had computed many combinations of electric and magnetic fields which should have such an effect, and which might reasonably—or at least conceivably—exist along the arms of the Milky Way. The wave patterns of Program B had been designed from these computations. Naturally, phenomena as complex as, say, the human nervous system or even the circuitry of a television set or the measuring patterns of Program A would be no improvement on pure chance as an explanation for star formation; such things were too improbable by any standards. Toner's fields were simple enough so that, in

his opinion, they were more probable than random gas and dust concentrations. They were also complex and extensive enough so that looking around for examples of them already in existence seemed impractical—so far. Of course, if Program B showed that such fields would, or could, produce the results Toner expected, he would have little trouble financing such a search.

If the program failed to give the results Toner hoped for, Ledermann was both unsure and uneasy about what to expect. Few men can abandon a favorite hypothesis abruptly and completely, and the need to do so can have painful effects.

Actually, Toner would not be forced to such an extreme at first; many more variations on the original theme would have to fail before the whole idea would have to be abandoned. What bothered Ledermann was the doubt that the foundation would go along with any such extension of the project and how Toner would react if it refused.

Actually he needn't have worried. The director was philosophical enough to take such a problem in his stride. Since the younger man had no way of knowing this, he watched his console with even more anxiety than his director—in spite of what they had both been saying.

But the green lights stared unwinkingly back at them, as the waves spread across space. No news, with the proverbial implication. The clock was the only instrument which showed change; the clock, that is, and two human nervous systems.

"Stuff coming in from Hoey's receivers," Ledermann reported abruptly. Toner nodded.

"On time," was his only answer. Neither bothered to ask, or to say, what sort of stuff was coming in; the data was no more meaningful to human senses than were

the photons which carried the first Mariner pictures from Mars. The main thing was that news was coming in; it was being recorded; it could, in due time, be decoded; and—Program B was due to start.

Both men sat up a little straighter and stared more tensely at their consoles as the light patterns began to change.

Simultaneously—the word was as nearly truthful as it had ever been in human history—sets of electromagnetic fields began to grow around both the *Ymyrgar* and the *Anfforddus*.

Neither set was complete by itself, but this interference would produce something which Ledermann thought of as a huge lens. The analogy was a poor one geometrically, but has some excuse from a functional viewpoint. Drifting slowly with respect to the surrounding gases, many of whose atoms were ionized, it should —if Toner was right—tend to deflect their relative motions toward its own "optical axis." To that extent, Toner's idea was a simple one. The precise pattern of fields which should have the desired effect was somewhat less so, as any engineer who has been involved with an electron microscope would expect.

Each "lens" of the series making up the program was to be followed by a set of reading patterns similar to those of Program A, so that its individual effect on the motion of the nebular particles could be measured. In principle, the whole thing was easy . . .

"Intervals seem to be right." Ledermann dredged a little good news out of his light pattern. "Four seconds, plus or minus ten to the minus tenth. Interlens distances are within tolerance, I'd say."

"If we haven't been too grossly off in computing the refractive index of the nebula—"

"Which is handled automatically by the original A measures, as I understood the plan. Calm down, boss."

"All right. You're talking a little louder than usual yourself. I still wish you'd invent a method for using the communicator medium for direct viewing; we could *see* whether these things are building right, instead of having to infer from generator behavior—"

"*Maybe* we could. I'm a conservative; I still buy the Uncertainty Principle. Even if we could do anything with the medium which would make it react to something besides a communicator crystal, I bet it would affect the thing we were trying to measure."

"It doesn't affect the crystals—just the space around them."

"Not measurably. Has anyone tried to check on them, to within fifteen figures of what we're doing now?"

"Not as far as I know. I—Dick! What happened then?"

Ledermann didn't know either. At least, he didn't know in the sense that Toner wanted to. Like the director, he had seen every light on his console except the one indicating tender separation turn a solemn red for a full second, and then switch back to green. If they had been looking away for that second, the men would not have known that anything had ever been wrong; after the event, the lights stared back at them, apparently unchanged.

The first thought to occur to both men was that something had happened to the console circuits; the second, that something had happened to their own nervous systems. Three seconds of checking with test switches seemed to dispose of the first possibility; and since they had both seen the same thing, the second was very low on the probability list.

Toner frowned, and spoke very slowly.

"If that is to be taken at face value, everything in both tenders which was putting out program radiation stopped for about a second and then started up again—all together. That would cause a gap of about three hundred thousand kilometers in the wave pattern—at each end—with the gaps due to meet in half an hour; let's see—what would that do to the lenses?"

"If you can work that out in your head, especially with only estimated time data, you didn't need to set up this experiment at all. You must have put the universe together in the first place," retorted Ledermann. "There's no more chance of telling that than of telling which of my next half million coin tosses is going to be heads."

"True." For a man whose work was taking such a blow, Toner seemed remarkably detached. "That would suggest that we should cut off our generators, let the present set of patterns radiate out of the area, and start over."

"We'd have to do more than that. The gas in the area has probably been affected by the part of B which has already gone out. We'd have to move the tenders to a different area altogether and set up the whole works again. Wouldn't it be better to let this program run itself through? We don't really know that the generators did stop; test circuits or no test circuits, I find it easier to believe that something messed up the indicators than that the whole set of generators went out and came back on again at once. If we let things run, the worst that can happen will be the loss of a couple of hours—and we *might* not have to start over, if this run is really all right."

"You're partly right. Letting it run won't cost us much time. But we will have to do it over anyway; we won't be able to tell if the first run was really okay until we

get the data reduced, which we can't do here. We'll just have to do the whole thing twice."

And Ledermann slowly nodded his head.

Hoey's reaction, some hours later, was more impressive. He and Luisi were celebrating their release, to the accompaniment of an improvised song whose burden was the supreme difficulty of doing nothing at all, when Toner broke the news as gently as possible that the whole thing would have to be done over.

He wrapped the information in flattery, lubricated it with all the soft soap he could bring himself to use and sweetened it with a respectable bonus offer; but neither pilot accepted the word at all philosophically. They were still visibly nettled sixty hours later when the tenders once more pulled away from the *Holiad.* This *may* have had something to do with the results.

They did calm down again, just a little, during the setup of the measuring line, however. Earlier practice may have helped, for it took them less than ninety minutes this time to get their little vessels "fixed" relative to each other.

"That's it, Doc!" Hoey's voice was almost jubilant. Toner, who had pretty well convinced himself by this time that the first run had really been all right, was able to answer in similar mood.

"Good going—that was very quick work. I'm starting the A tapes now. About how far are you from where the other run was made?"

"A couple of flight-hours, I'd say; we didn't try to check it exactly. You didn't say it was necessary."

"It isn't. Relax. And I do mean *relax.*"

"I know, boss. We're getting used to it. Let things roll."

"They're rolling."

Even in the calmer atmosphere of the second run, tension built up a little during Program A. Even though this part had gone without a visible hitch the first time, there was no way of knowing whether the unknown interference had a preference for Program B.

Of course, it might have. The programs *were* different—and the word "unknown" certainly was a key one. No one is quite sure, yet.

Toner and Ledermann of course knew to the second just when the Program B interruption, if it had really been one, had occurred; Hoey and Luisi knew almost as well from the physicists' account of the affair. All four were watching clocks; and perhaps it was the tension wound up by the whirling clock hands which caused the trouble; perhaps not. No one was ever sure. Whatever the cause, six seconds before the critical moment, when both scientists were gripping their chair arms and staring frozenly at their consoles, Hoey sneezed.

It was quite a sneeze, and the fact that Toner heard it clearly through the medium communicator did not operate to lessen its effects. The pilot's head had been resting in the padded support which formed part of his seat—the support in which it was supposed to remain through the experiment. The muscular convulsion of the sneeze snapped that head some twenty centimeters forward and down.

The *Antforddus* had, roughly, a million times the mass of Hoey's head, so its center of mass moved only about a millionth as far. This amounted to about a fifth of a micron. The fact that this was within the set tolerances for the experiment did not at once dawn on Toner—for one thing, it would have taken him a moment to figure it out under any circumstances, and for another his reaction was reflexive rather than rational. He was like

a confirmed anti-vivisectionist reacting to an account of a mechanical heart's being tested on a dog; he exploded. He jumped—much farther than Hoey, though fortunately it didn't matter how much the *Holiad* moved. He also began to talk, though just what he said is uncertain—Ledermann charitably wiped that part of the monitor tape, later. It took the younger man some thirty seconds to calm his superior down enough to listen to reason, and perhaps fifteen more to supply the reason. Another five seconds passed while Toner actually recovered control of himself, and started to apologize to Hoey.

But Hoey did not hear the apology—we think.

In the fifty seconds or so since his sneeze, radiation from his ship travelled some fifteen million kilometers. This is easy to compute; it is pretty certainly a fact. It may possibly be a useful one, though no one so far has put it to any real use.

The trouble is, of course, that there is no way to be sure whether the sneeze put any significant alteration into the radiation pattern which the *Anfforddus* was broadcasting. This, equally of course, is because no one can be sure just how big a change must be in order to be significant.

Toner had just started to talk in a normal tone when Ledermann gave an astonished yelp; and the director, whose attention had shifted entirely to the screen of the medium communicator, looked back to his console.

Its lights were out. It was blank. So, when he turned back to it, was the medium screen. And so was Ledermann's console.

One hundred seconds later, after repeated calls to the tenders had proven futile, the *Holiad*'s captain

snapped her into irrelevance drive. Between four and five seconds later still, a hundredth of a parsec from where she had been lying, the research vessel halted again. Presumably she was within a few tens of thousands of kilometers of Hoey's tender, but no sign of the little ship could be detected by eye or instrument.

Calls continued to go unanswered. Searchers went out with detection and rescue equipment; the former gave no response, the latter went unused. Not a particle of solid matter could be found within light-minutes of either tender's former position; and it was not until much later, when the routine sample-bottles were being checked back on Rhyddid, that the slightly high count of aluminum atoms in that particular volume of space was noticed.

Of course, this may not be a significant fact, either.

"And just who was that?" The query came in the growl which seems to be a distinguishing property of sergeants, whether their linear dimensions be two meters or two hundred astronomical units. It received no immediate answer. "Well? Who was it? It came from just about where you should be, VA741. Was it you?"

"I—I guess so."

"You *guess* so? A soldier lets out a yelp that can be heard halfway across the spiral, and he only *guesses* that he did it?"

"I did it, I—I—"

"You did. Never mind the guessing. Why did you do it? You know why we're here?"

"Yes, Sergeant."

"You know what we're doing here?"

"Yes, Sergeant."

"In fact, up to now you've been helping to do it."

"Yes, Sergeant."

"And you know why we've been sweeping this stuff together."

"Yes, Sergeant. To clear a path for—"

"Shut up. How much use will the path be if the Flickers find it before our boys have a chance to come through?"

"Not much, I suppose, Sergeant."

"You suppose. Well, I suppose I should be glad it even occurred to you. Now that you've squealed like a stuck baby, how long do you suppose it will be before Flicker scouts are poking around this cloud?"

"I don't know, Sergeant."

"I don't know either, but I'll be very surprised if we drift a hundredth of the way around the spiral. If it were possible to travel faster than radiation, they'd be spearing you before you cleared another cubic parsec."

"They may show up anyway; we can't tell yet."

"That, soldier—I use the term loosely—is the only reason you're not under formal charges right now. If we're spotted in the next little while—say, before the cloud you're sweeping up right now starts to radiate—I'll assume it wasn't your fault. But if we're found after that, when that squeal of yours has spread out a few hundred parsecs, you're in for it. What I ever did to be saddled with a—"

"But, Sergeant, I couldn't help it. Something bit me."

"So something bit you. Let it bite! Since when—"

"But I really couldn't help it. It did something to my muscles, and I twitched so I thought someone might spot me anyway; but I relaxed and even damped out the spot with dope. I know how important it is not to make a disturbance. The sensation quit for a moment, but then it came back stronger than before, and before I could take another tranquilizer I cramped up tight all over. I couldn't help giving a little yelp—"

"Little? It was loud enough to—never mind. I hope you can produce whatever bit you; it may help in court. After all, I suppose anything which can interfere with even a sloppy soldier's self-control might be usable as a weapon. If we could breed more of 'em—that's an idea. See if you can catch it, without making too much noise."

"I'm afraid I didn't think of that in time, Sarge. We'll never catch that one. The whole business was just reflex, and I'm very sorry, but I swatted it without thinking."

In addition to their voice qualities, sergeants are sometimes known for a certain gift of rhetoric. This one, DA-6641, of the 44th Company, 6261st Field Engineering Battalion, Army of the Republic of Whilth, was no exception.

If he had not been careful to use only short radiation in his remarks, they would have been audible back in Whilth, in the spiral arm of the Milky Way next outward from Sol's. Even with the short waves, he might possibly have made an impression on the *Holiad*'s instruments; but of course the *Holiad* was no longer there.

Long before he had really made himself clear about just what sort of poor excuse for a soldier the unfortunate VA741 was, both Elvin Toner and Dick Ledermann were dead of old age.

TOYS FOR DEBBIE

by David A. Kyle

The locomotive, with flashing eye, roared out of the tunnel in the hill and rushed along the curving track. Halfway through the long bend, the speeding engine suddenly trembled and swayed. Then, within a few noisy seconds, most of the train separated from the rails, coaches ramming each other, sliding and slamming together over and around the engine. The locomotive died with a scream of steam, blotting out with its ferocious shhushh all the other screams . . .

The child jumped up and down with sudden exhilaration and looked at the wreck.

"Daddy, Daddy!" she said. "It's crashed!"

Her father, Frank Curtis, stopped talking with the insurance salesman and stepped back from the other end of the living room.

The salesman, stiff and motionless, watched the father put the toy cars back on the tracks.

"If you're going to wreck your toys, well, all right then, Debbie," Frank Curtis said. "But can't you remember we have a guest? Can't you wait later to play rough?" He adjusted the silk ribbon in her hair.

"Be a good girl for Daddy, dear." The father straight-

ened up and looked into the smooth, impassive face of the salesman.

"Nothing broken, Mr. Black," Frank Curtis said.

"She's an unusual child," Mr. Black said. "I mean, girls don't play with toy trains ordinarily."

"Well, she *is* unusual, Mr. Black," the father said. "She likes all the stuff that girls play with, too."

"Was this hers, also, sir?" Mr. Black asked. He tipped his head toward the book shelf near where they stood. As Frank Curtis was nodding his head in reply, the salesman reached out and caressed the broken body of a model commercial airliner.

"You saw the picture in the paper?" the father asked.

"Oh, I did, yes." The man quickly drew his hand away. "It was a tragic accident."

"Tragic?" Frank Curtis looked and sounded puzzled. "I think it can be mended. She broke it weeks after they took her picture with it . . ."

"*That* picture," Mr. Black said sharply, his dark eyes dropping their gaze swiftly to the floor and then back to the six-year-old girl sitting on the sofa. She looked back at him serenely. "She's an attractive child, takes a wonderful picture." He was speaking rapidly. "Yes, I saw her picture—with that airplane, of course—in the local paper. It was a nice story, about a little girl who likes boys' toys as much as girls'. Yes, I read about her."

Frank Curtis hesitated a moment, then said, "Oh," and smiled.

Mr. Black continued. "Yes, I read about her. I read a lot, I keep up with things." He stopped abruptly and then added: "You must be proud of your daughter, Mr. Curtis, very proud." The father responded with a warm grin, a bit modest.

"Yes, when I read that article, even though it was brief, I felt I knew Debbie. And I wanted to do some-

thing for her." The salesman squeezed the other man's shoulder. "I'm so anxious to make you one of our clients, Mr. Curtis, that *I'm* going to give you a deal you simply can't afford to turn down."

It was just such a deal and Frank Curtis did not turn it down. That was why Mr. Black returned the following month on the first regular collection call. With him he brought a doll for the little girl. She was really appreciative, even if her father did have to remind her to thank the nice man, and she took it up on the couch with her to play.

"They tell me you're a new man," Frank Curtis said, "but a good one."

Mr. Black raised his heavy black eyebrows in honest surprise. "Oh, you checked up on me? That was the right thing to do." He paused for a moment, as if making a decision, then added, "I'm a veteran. I had many years service—demolitionist." The smile stayed warm and frank. "I find my new work even more exciting—and more satisfying, of course, because of its humanitarianism."

Mr. Black picked up his red-and-black plaid cap and as he was leaving, said to Debbie, "It's a very special doll, you know, honey." He hesitated before adding, casually, "I mean, it's practically unbreakable."

Debbie's father looked startled, his mouth opening and closing silently.

On the following monthly visit when Mr. Black came, he said to her, while her father was getting his check book, "I'm sorry your dolly lost its arm."

She crawled under the sofa and brought out the doll; it was in a sorry state, dirty and ragged, nearly bald, its left arm gone, exposing the hollow shoulder socket.

"Thank you, I'm sure," the little girl said, looking up

with wide soft eyes. "How did you know?" Mr. Black avoided her stare and then Mr. Curtis came in and saw the doll.

"It's a shame," Frank Curtis said. "I'd hoped we'd keep it a secret from you." He shrugged his shoulders. "Well, it shouldn't be any surprise."

"It's quite all right, sir. It was only a cheap doll and it's served its purpose."

"You know," the father said slowly, "those grown-up dolls—I can't get used to them. The obvious maturity . . ." He picked up the boy and examined it carefully. "Why," he said, genuinely surprised, "I think it has real hair!" He put the doll on the bookcase shelf. "I hope my daughter isn't just plain vicious."

"Oh, no! She's just completely human, I assure you." Mr. Black sighed. "She's mischievous, but really quite innocent."

For the first time Frank Curtis seemed to sense something behind Mr. Black's speech. "You seem to know more about my child than I do."

Mr. Black's stare was fixed on the floor. "I generalize, of course. All children have two natures—one is primeval, selfish and savage, the other is moral, unselfish and civilized. Children who are still innocent express themselves either way—sometimes both ways simultaneously." He lifted his head and looked Frank Curtis deep in the eyes. The gaze, unlike the charged and forceful speech, was cool and calm.

"Forget about the doll," Mr. Black said. He put his right hand in his pocket and pulled out a small package. "Here's something for her train. I made them for a nephew years ago, but unfortunately he died and I saved them to give to someone else some day."

He began to unwrap the package.

"Really, Mr. Black, you're more than kind, but all this gift-giving . . ."

"This is nothing, believe me. It's more a personal thing than a present." He opened the package. Inside were a number of narrow strips of paper.

Frank Curtis examined them. They were all gummed on one side and had the names of some famous railroads printed on them. A few of them read: 20TH CENTURY LIMITED.

In answer to the bewildered look, the salesman said: "It's very simple, sir. I thought my nephew's trains would look more real with these glued over the brand name. I thought you might let me fasten them on Debbie's trains . . ."

For one of those rare times, the two men looked each other squarely in the face. Frank Curtis chewed on the inside of his cheek for several moments.

"Why should I?"

Mr. Black said wistfully, but persuasively, "I loved my nephew very much—it's something I wanted to do for him." He made a little, pensive "hmmph" in his throat. "Children like to associate toys with real things. That's all."

Debbie's father shook his head, frowning. "It sounds foolish. Why should a grown man like you think of such a thing?"

"What would you have me think of? A new style doll, its pleasure measured by its expensiveness? A costly garment, to be outgrown quickly with fashionable waste? A pretty picture book, beautifully, scientifically and heartlessly manufactured?" Mr. Black said this utterly without a trace of bitterness and the smile on his face was overwhelmingly disarming. "The small things often become the important things, the cherished things . . . And I *loved* my nephew!"

Frank Curtis said, "You're a real salesman!" There was a touch of awe in his admiration.

So Mr. Black, with Mr. Curtis' help, changed the name of the train.

Afterwards they decided to run the train a few times, just to see how it looked.

It went around the track several times without incident and then Mr. Black bent down and said softly to Debbie: "Can you make it run faster?"

The locomotive, with flashing eye, roared out of the tunnel . . .

Mr. Black towered above the layout, his feet planted on either side of the cardboard tunnel.

. . . and rushed along the curving track . . .

The father started to say, "It's going too fast . . ."

The speeding engine trembled . . . swayed . . .

Mr. Black's face was expressionless and colorless and he picked up his plaid cap in preparation for leaving.

. . . The train separated from the rails . . .

"Ooops, off the track," Mr. Black said in a small voice, strolling toward the door. "Thank you for everything . . ."

The locomotive died with a scream of steam, blotting out with its ferocious shhushh all other screams.

The following month both the incident and the real tragedy were barely mentioned. "A terrible coincidence," said Frank Curtis to his caller, which is precisely what he had said to himself when he had picked up the next day's newspaper and saw the headline. Now no reminder remained, for the paper names on the train had soon dried up and peeled away.

Mr. Black had another present for Debbie, but her father, more out of a reflex of custom, rather than a subconscious nervousness, was unwilling to accept it. Mr. Black was magnificently persuasive. He finally got

an agreement after he said that he was going away and promised that this present would be the absolute end.

Mr. Curtis opened the box and looked inside. What was it Mr. Black had said, Debbie was just mischievous, just human?

The gift was an exquisite glass globe reproduction of the Earth.

It looked quite fragile, so Frank Curtis put it on the shelf for when Debbie would be older and could cherish it.

FOREST IN THE SKY

by Keith Laumer

I

As Second Secretary of Embassy Jame Retief stepped from the lighter which had delivered the Terran Mission to the close-cropped turquoise sward of the planet Zoon, a rabbit-sized creature upholstered in deep blue-violet angora bounded into view from behind an upthrust slab of scarlet granite. It sat on its oddly arranged haunches a few yards from the newcomers, twitching an assortment of members as though testing the air for a clue to their origin. First Secretary Magnan's narrow face registered apprehension as a second furry animal, this one a yard-wide sphere of indigo fuzz, came hopping around the prow of the vessel.

"Do you suppose they bite?"

"They're obviously grass-eaters," Colonel Smartfinger, the military attache, stated firmly. "Probably make most affectionate pets. Here, ah, kitty, kitty." He snapped his fingers and whistled. More bunnies appeared.

"Ah—Colonel." The agricultural attache touched his sleeve. "If I'm not mistaken, those are immature specimens of the planet's dominant life form!"

"Eh? Oldtrick pricked up his ears. "These animals? Impossible!"

"They look just like the high-resolution photos the Sneak-and-peek teams took. My, aren't there a lot of them!"

"Well, possibly this is a sort of playground for them. Cute little fellows." Oldtrick paused to kick one which had opened surprising jaws for a nip at his ankle.

"That's the worst of these crash operations." The economic officer shied as a Terrier-sized fur-bearer darted in close and crunched a shiny plastic button from the cuff of his mauve, late midmorning, semi-informal hip-huggers. "One never knows just what one may be getting into."

"Oh-oh." Magnan nudged Retief as a technician bustled from the lock, heavy-laden. "Here comes the classified equipment the ambassador's been sitting on since we left Sector HQ."

"Ah!" Ambassador Oldtrick rubbed his small, well manicured hands briskly together, lifted an article resembling a Mae West life jacket from the stack offered.

"Here, gentlemen, is my personal contribution to, ahem, high-level negotiations!" He smiled proudly and slipped his arms through a loop of woven plastic. "One-man, self-contained, power-boosted aerial lift units," he announced. "With these, gentlemen, we will confront the elusive Zooner on his home ground!"

"But—the post report said the Zooners are a sort of animated blimp!" the information officer protested. "Only a few of them have been seen, and those were cruising at high altitude! Surely we're not going after *them!*"

"It was inevitable, gentlemen." Oldtrick winced as the technician tugged the harness strap tight across his narrow chest. "Sooner or later man was bound to encounter lighter-than-air intelligence—a confrontation for which

we of the *Corps Diplomatique Terrestrienne* are eminently well qualified!"

"But, your excellency," First Secretary Magnan spoke up. "Couldn't we have arranged to confront these, er, gaseous brains here on solid land?"

"Nonsense, Magnan! Give up this superb opportunity to display the adaptability of the trained diplomat? Since these beings dwell among the clouds of their native world, what more convincing evidence of good will could we display than to meet them on their own grounds, so to speak?"

"Of course," the corpulent political officer put in, "we aren't actually *sure* there's anyone *up* there." He squinted nervously up at the lacy mass of land-coral that reached into the Zoonian sky, its lofty pinnacles brushing a seven-thousand-foot stratum of cumulonimbus.

"That's where we'll steal a march on certain laggards," Oldtrick stated imperturbably. "The survey photos clearly show the details of a charming aerial city nestled on the reef. Picture the spectacle, gentlemen, when the mission descends on them from the blue empyrean to open a new era of Terran-Zoon relations!"

"Yes—a striking *mis en scene* indeed, as your excellency points out." The economic officer's cheek gave a nervous twitch. "But what if something goes wrong with the apparatus? The steering mechanism, for example, appears a trifle insubstantial—"

"These devices were designed and constructed under my personal supervision, Chester," the ambassador cut him off coolly. "However," he continued, "don't allow that circumstance to prevent you from pointing out any conceptual flaws you may have detected."

"A marvel of lightweight ingenuity," the economic officer said hastily. "I only meant. . . ."

"Chester's point was just that maybe some of us ought to wait here, Mr. Ambassador," the military attache said. "In case any, ah, late dispatches come in from Sector, or something. Much as I'll hate to miss participating, I volunteer—"

"Kindly rebuckle your harness, Colonel," Oldtrick said through thinned lips. "I wouldn't dream of allowing you to make the sacrifice."

"Good Lord, Retief," Magnan said in a hoarse whisper behind his hand. "Do you suppose these little tiny things will actually work? And does he mean . . ." Magnan's voice trailed off as he stared up into the bottomless sky.

"He really means," Retief confirmed. "As for his Excellency's invention, I suppose that given a large-diameter, low-density planet with a standard mass of 4.8 and a surface G of .72, plus an atmospheric pressure of 27.5 P. S. I. and super-light gas—it's possible."

"I was afraid of that," Magnan muttered. "I don't suppose that if we all joined together and took a firm line . . . ?"

"Might be a savings at that," Retief nodded judiciously. "The whole staff could be court-martialed as a group."

". . . and now," Ambassador Oldtrick's reedy voice paused impressively as he settled his beret firmly in place.

"If you're ready, gentlemen—inflate your gasbags!"

A sharp hissing started up as a dozen petcocks opened as one. Bright-colored plastic bubbles inflated with sharp popping sounds above the shoulders of the Terran diplomats. The ambassador gave a little spring and bounded

high above the heads of his staff, where he hung, supported by the balloon, assisted by a softly snorting battery of air jets buckled across his hips.

Colonel Smartfinger, a large bony man, gave a half-hearted leap, fell back, his toes groping for contact as a gust of air bumbled him across the ground. Magnan, lighter than the rest, made a creditable spring and rose to dangle beside the chief of mission. Retief adjusted his buoyancy indicator carefully, jumped off as the rest of the staff scrambled to avoid the questionable distinction of being the last man airborne.

"Capital, gentlemen!" Oldtrick beamed at the others as they drifted in a ragged row, roped together like alpinists, five yards above the surface. "I trust each of you is ready to savor the thrill of breaking new ground!"

"An unfortunate turn of phrase," Magnan quavered, looking down at the rocky outcropping below. The grassy plain on which the lighter had deposited the mission stretched away to the horizon, interrupted only by the upthrusting coral reefs dotted across it like lonely castles in the Daliesque desert and a distant smudge of smoky green.

"And now—onward to what I hope I may, without charges of undue jocularity, term a new high in diplomacy," Oldtrick cried. He advanced his jet control lever and lifted skyward, trailed by the members of his staff.

II

Five hundred feet aloft, Magnan clutched the arm of Retief, occupying the adjacent position in the line.

"The lighter is lifting off!" He pointed to the slim shape of the tiny Corps vessel, drifting upward from the sand below. "It's abandoning us!"

"A mark of the ambassador's confidence that we'll meet with a hospitable reception at the hands of the Zooners," Retief pointed out.

"Frankly, I'm at a loss to understand Sector's eagerness to accredit a mission to this wasteland." Magnan raised his voice above the whistling of the sharp wind and the polyphonous huffing of the jato units. "Retief, you seem to have a way of picking up odd bits of information. Any idea what's behind it?"

"According to a usually reliable source, the Groaci have their eyes on Zoon—all five of them. Naturally, if they're interested, the Corps has to beat them to it."

"Aha!" Magnan looked wise. "They must know something. By the way," he edged closer. "Who told you? The ambassador? The undersecretary?"

"Better than that; the bartender at the departmental snackbar."

"Well, I daresay our five-eyed friends will receive a sharp surprise when they arrive to find us already on a cordial basis with the locals. Unorthodox though Ambassador Oldtrick's technique may be, I'm forced to concede that it appears the only way we could have approached these Zooners." He craned upward at the fanciful formation of many-fingered rock past which they were rising. "Odd that none of them have sallied forth to greet us."

Retief followed his gaze. "We still have six thousand feet to go," he said. "I suppose we'll find a suitable reception waiting at the top."

Half an hour later, Ambassador Oldtrick in the lead, the party soared above the final rampart to look down on a wonderland of rose and pink violet coral, an intricacy of spires, tunnels, bridges, grottos, turrets, caves, avenues, as complex and delicately fragile as spun sugar.

"Carefully, now, gentlemen." Oldtrick twiddled his jato control, dropped in to a gentle landing on a graceful arch spanning a cleft full of luminous gloom produced by the filtration of light through the translucent construction. His staff settled in nearby, gazing with awe at the minarets rising all around them.

The ambassador, having twisted a knob to deflate his gasbag and laid aside his flying harness, was frowning as he looked about the silent prospect.

"I wonder where the inhabitants have betaken themselves?" He lifted a finger, and six eager underlings sprang to his side.

"Apparently the natives are a trifle shy, gentlemen," he stated. "Nose around a bit. Look friendly. And avoid poking into any possibly taboo areas such as temples and public comfort stations."

Leaving their deflated gasbags heaped near their point of arrival, the Terrans set about peering into caverns and clambering up to gaze along twisting alleyways winding among silent coral palaces. Retief followed a narrow path atop a ridge which curved upward to a point of vantage. Magnan trailed, mopping at his face with a scented tissue.

"Apparently no one's at home," he puffed, coming up to the tiny platform from which Retief surveyed the prospect spread below. "A trifle disconcerting, I must say. I wonder what sort of arrangements have been laid on for feeding and housing us?"

"Another odd thing," Retief said. "No empty beer bottles, tin cans, old newspapers, or fruit rinds. In fact, no signs of habitation at all."

"It rather appears we've been stood up," the economic officer said indignantly. "Such cheek—and from a pack of animated intangibles, at that!"

"It's my opinion the town's been evacuated," the po-

litical officer said in the keen tones of one delivering an incisive analysis of a complex situation. "We may as well leave."

"Nonsense!" Oldtrick snapped. "Do you expect me to trot back to Sector and announce that I can't find the government to which I'm accredited?"

"Great heavens!" Magnan blinked at a lone dark cloud drifting ominously closer under the high overcast. "I thought I sensed something impending. Uh, Mr. Ambassador!" he called, starting back down. At that moment, a cry from an adjacent cavern focused all eyes on the military attache, emerging with a short length of what appeared to be tarred rope, charred at one end.

"Signs of life, your excellency!" he announced. "A dope-stick butt!" He sniffed it. "Freshly smoked."

"Dope-sticks! Nonsense!" Oldtrick prodded the exhibit with a stubby forefinger. "I'm sure the Zooners are far too insubstantial to indulge in such vices."

"Ah, Mr. Ambassador," Magnan called. "I suggest we all select a nice dry cave and creep inside, out of the weather—"

"Cave? Creep? Weather? What weather?" Oldtrick rounded on the first secretary as he came up. "I'm here to establish diplomatic relations with a newly discovered race, not set up housekeeping!"

"*That* weather," Magnan said stiffly, pointing at the giant cloud sweeping swiftly down on them at a level which threatened to shroud the party in a fog in a matter of minutes.

"Eh? Oh." Oldtrick stared at the approaching thunderhead. "Yes, well, I was about to suggest we seek shelter."

"What about the dope-stick?" The colonel tried to recapture the limelight. "We hadn't finished looking at

my dope-stick when Magnan came along with his cloud."

"My cloud is of considerably more urgency than your dope-stick, Colonel," Magnan said softly. "Particularly since, as his excellency has pointed out, your little find couldn't possibly be the property of the Zooners."

"Ha! Well, if it isn't the property of the Zooners, then whose is it?" The officer looked at the butt suspiciously, passed it around. Retief glanced at it, sniffed it.

"I believe you'll find this to be of Groaci manufacture, Colonel," he said.

"What?" Oldtrick clapped a hand to his forehead. "Impossible! Why, I myself hardly know—that is, they couldn't—mean to say, drat it, the location of this world is Utter Top Secret!"

"Ahem." Magnan glanced up complacently at his cloud, now a battleship-sized shape only a few hundred feet distant. "I wonder if it mightn't be as well to hurry along now before we find ourselves drenched."

"Good Lord!" The political officer stared at the gray-black mass as it moved across the hazy sun, blotting it out like an eclipse. In the sudden shadow, the wind was abruptly chill. The cloud was above the far edge of the reef now; as they watched, it dropped lower, brushed across a projecting digit of stone with a dry *squeel,* sent a shower of tiny rock fragments showering down. Magnan jumped and blinked his eyes hard, twice.

"Did you see . . . ? Did *I* see . . . ?"

Dropping lower, the cloud sailed between two lofty minarets, scraped across a lower tower topped with a series of sharp spikes. There was a ripping sound, a crunch of stone, a sharp *powl,* a blattering noise of escaping gas. A distinct odor of rubberized canvas floated across to the diplomats, borne by the brisk breeze.

"Ye gods!" The military attache shouted. "That's no

cloud! It's a Trojan horse! A dirigible in camouflage! A trick!" He cut off and turned to run as the foundering four-acre balloon swung, canted at a sharp angle, and thundered down amid gratings and crunchings, crumbling bridges, snapping off slender towers, settling in to blanket the landscape like a collapsed circus tent. A small, agile creature in a flared helmet and a black hip-cloak appeared at its edge, wading across the deflated folds of the counterfeit cloud, cradling a formidable blast gun in its arms. Others followed, leaping down and scampering for strategic positions on the high ground surrounding the Terrans.

"Groaci shock troops!" the military attache shouted. "Run for your lives!"

He dashed for the concealment of a shadowy canyon; a blast from a Groaci gun sent a cloud of coral chips after him. Retief, from a position in the lee of a buttress of rocks, saw half a dozen of the Terrans skid to a halt at the report, put up their hands as the invaders swarmed around them, hissing soft Groaci sibilants. Three more Terrans, attempting flight, were captured within fifty feet, prodded back at gunpoint. A moment later a sharp *oof!* and a burst of military expletives announced the surrender of Colonel Smartfinger. Retief made his way around a rock spire, spotted Ambassador Oldtrick being routed from his hiding place behind a cactus-shaped outcropping.

"Well, fancy meeting *you* here, Hubert." A slightly built, splendidly dressed Groaci strolled forward, puffing at a dope-stick held in silver tongs. "I regret to submit you to the indignity of being trussed up like a Gerp-fowl in plucking season, but what can one expect when one commits an aggravated trespass, eh?"

"Trespass? I'm here in good faith as Terran envoy to

Zoon!" Oldtrick sputtered. "See here, Ambassador Shish, this is an outrage! I demand you order these bandits to release me and my staff at once! Do you understand?"

"Field Marshal Shish, if you please, Hubert," Shish whispered. "These are a duly constituted constabulary. If you annoy me, I may just order them to exercise the full rigor of the law which you have so airily disregarded!"

"What law? Your confounded dacoits have assaulted peaceful diplomats in peaceful pursuit of their duties!"

"Interplanetary law, my dear sir," Shish hissed. "That section dealing with territorial claims to uninhabited planets."

"But—but the Zooners inhabit Zoon!"

"So? An exhaustive search of the entire planetary surface by our Scouting Service failed to turn up any evidence of intelligent habitation."

"Surface? But the Zooners don't occupy the surface!"

"Exactly. Therefore we have assumed ownership. Now, about reparations and damages in connection with your release. I should think a million credits would be about right—paid directly to me, of course, as Planetary Military Governor, *pro tem.*"

"A million?" Oldtrick swallowed hard. "But . . . but . . . see here!" He fixed Shish with a desperate eye. "What is it you fellows are after? This isn't the kind of sandy-dry real estate you Groaci prefer—and the world has no known economic or strategic value."

"Hmmm." Shish flicked his dope-stick butt aside. "No harm in telling you, I suppose. We intend to gather a crop."

"Crop? There's nothing growing here but blue grass and land coral!"

"Wrong again, Hubert. The crop that interests us is

this . . ." He fingered the edge of his shaggy violet cape. "A luxury fur, light, colorful, nonallergic." He lowered his voice and leered with three eyes. "And with reportedly fabulous aphrodisiac effects; and there are millions of credits worth of it, leaping about the landscape below, free for the harvesting!"

"But surely you jest, sir! Those are—"

There was a sudden flurry as one of the Terrans broke free and dashed for a cave. The Groaci constabulary gave chase. Shish made an annoyed sound and hurried away to oversee the recapture. Oldtrick, left momentarily alone, eyed the flying harnesses lying in a heap ten yards from him. He took a deep breath, darted forward, snatched up a harness.

As he turned to sprint for cover, a breathy cry announced his discovery. Desperately, the chief of mission struggled into his straps as he ran, twisted the valve, fired his jato units and shot into the air above the heads of a pair of fleet-footed aliens who had been about to lay him by the heels. He passed over Retief's head at an altitude of twenty feet, driven smartly by the brisk breeze. Retief ducked his head, hugged the shadows as Groaci feet pounded past at close range, pursuing the fleeing Terran. Retief saw half a dozen marksmen taking aim at the airborne diplomat as the wind swept him out over the reef's edge. Shots rang. There was a sharp report as a round pierced the gasbag. With a despairing wail, the ambassador sank swiftly out of sight.

Retief rolled to his feet, ran to the pile of flight harnesses, grabbed up two, whirled and sprinted for the edge over which Oldtrick had vanished. Two Groaci, turning to confront the new menace descending on their rear, were bowled aside by Retief's rush. Another sprang to intercept him, bringing his gun around. Retief

caught the barrel in full stride, swung the gun with its owner still clinging desperately to it, slammed the unfortunate alien into the faces of his astounded comrades. Shots split the air past Retief's ear, but without slowing, he charged to the brink and dived over into seven thousand feet of open air.

III

The uprushing wind shrieked past Retief's ears like a typhoon. Gripping one of the two harnesses in his teeth, he pulled the other on as one would don a vest, buckled the straps. He looked down, squinting against the rush of air.

The ambassador, falling free now, with his burst balloon fluttering at his back, was twenty feet below. Retief tucked his arms close, kicked his heels up to assume a diver's attitude. The distance between the two men lessened. The rock face flashed past, dangerously close. Retief's hand brushed Oldtrick's foot. The ambassador twisted convulsively to roll a wild eye at Retief, suspended above him in the hurtling airstream. Retief caught the senior diplomat's arm, shoved the spare harness into his hand. A moment later Oldtrick had shed his ruined gasbag and shrugged into the replacement.

With a twist of the petcock, he inflated his balloon and at once slowed, falling behind Retief, who opened his own valve, felt the sudden tug of the harness. A moment later, he was floating lightly a hundred feet below the ambassador, who was drifting gently closer.

"Quick thinking, my boy," Oldtrick's voice came faintly. "As soon as I'm aboard the transport, I shall summon a heavy PE unit to deal with those ruffians! We'll thwart

their inhuman scheme to massacre helpless infant Zooners, thus endearing ourselves to their elders!" He was close now, dropping as Retief rose. "You'd better come along with me," he said sharply as they passed, ten feet apart. "I'll want your corroborative statements, and—"

"Sorry, Mr. Ambassador," Retief said. "I seem to have gotten hold of a heavy-duty unit. It wants to go up, and the valve appears to be stuck."

"Come back," Oldtrick shouted as he dropped away below the younger man. "I insist that you accompany me!"

"I'm afraid it's out of my hands now, sir," Retief called. "I suggest you stay out of sight of any colonist who may have settled in down below. I have an idea they'll be a little trigger happy when they discover their police force is stranded on the reef, and a dangling diplomat will make a tempting target."

The southwest breeze bore Retief along at a brisk twenty-mile-per-hour clip. He twisted the buoyancy control lever both ways, to no avail. The landscape dwindled away below him, a vast spread of soft aquamarine hills.

From this height, immense herds of creatures were visible, ranging in color from pale blue to deep grape-juice. They appeared, Retief noted, to be converging on a point not far from the base of the coral reef, where a number of black dots might have been small structures. Then the view was obscured, first by whipping streamers of fog, then by a dense, wet mist which enveloped him like a cool, refreshing Turkish bath.

For ten minutes he swirled blindly upward; then watery sunshine penetrated, lighting the vapor to a golden glow; a moment later he burst through into brilliance. A deep blue sky arched above the blinding white cloud-

plain. Squinting against the glare, he saw a misty shape of pale green projecting above the clouds at a distance he estimated at five miles. Using steering jets, he headed for it.

Fifteen minutes later, he was close enough to make out thick, glossy yellow columns, supporting masses of chartreuse foliage. Closer, the verdure resolved into clusters of leaves the size of tablecloths, among which gaudy blossoms shone scarlet.

In the leafy depths, the sun striking down from zenith was filtered to a deep, green-gold gloom. Retief maneuvered toward a sturdy-looking branch, only at the last moment saw the yard-long thorns concealed in the shadow of the spreading leaves. He ducked, twisted aside from the savage stab of a needle-point, heard the rip and *kerpowl* as his gasbag burst, impaled; then he slammed hard against a thigh-thick, glass-smooth branch, grabbed with both hands and both legs, and braked to a halt inches from an upthrust dagger of horny wood.

All around, life swarmed, humming, buzzing, chattering in a hundred oddly euphonious keys. There were fluffy, spherical bird-things in vivid colors; darting scaled runners like jeweled ferrets; swams of tiny golden four-winged butterflies. Once something hooted, far away, and for a moment the chorus was stilled to resume a moment later.

Looking down, Retief could see nothing but level after level of leafy branches, blotting out the swirling clouds two hundred feet below. The ground, he estimated, was a mile and a half farther—not what could be described as an easy climb. Still, it looked like the only way. He divested himself of the ruined altitude harness, picked a route and started down.

Retief had covered no more than fifty feet when a

sudden flurry of motion caught his eye through the foliage. A moment later, a clump of leaves leaned aside, pushed by a gust of wind, to reveal a bulky, ghost-pale creature, its body covered with short white bristles, its head a flattened spheroid. Its multiple shiny black limbs threshed wildly against the restraint of a web of silky, scarlet threads, stretched between limbs in an intricate spiral pattern. A flat pouch, secured by a flat strap, bobbed against the trapped creature's side. The web, Retief saw, was constructed at the very tip of a pair of long boughs which leaned in a deep curve under the weight of the victim—and of something else.

Peering into the shadows, he saw a foot-long claw like a pair of oversized garden shears poised in the air two feet from the trapped being. Then he noted that the claw was attached to an arm like a six-foot length of stainless steel pipe, which was attached, in turn, to a body encased in silvery-blue armor plate, almost invisible in the leafy gloom.

As Retief watched, the arm lunged, sheared through a cluster of awning-sized leaves, snipped off a tuft of stiff white hairs as the snared one made a desperate bound sideways. The aggressor, it appeared, had advanced as far along the fragile support as possible; but it was only a matter of time until the murderous pincer connected with its target.

Retief checked his pockets, produced a pocket knife with a two-inch blade, useful chiefly for cutting the tips from hand-rolled Jorgensen cigars. He used it to saw through a half-inch thick vine drooping near him. He coiled the rope over his shoulder and started back up.

IV

From a branch far above, Retief peered down through the leafy shadows at the twelve-foot monstrosity that was clinging head down from a six-inch stem. The predator had stretched itself out to its utmost length in its effort to reach the victim trapped below.

Retief slid down to a crouch within touching distance of the monster's main hind leg. He flipped out the lariat he had fashioned hastily from the length of pliable vine, passed its end under the massive ankle joint, whipped it quickly into a slip knot which would tighten under pressure. He tied the other end of the rope to a sturdy bole at his back, pulling it up just short of taut. Then he slid around the trunk and headed back for the scene of the action, paying out a second rope, the end of which was secured to a stout limb.

The trapped creature, huddled at the extreme extent of the rein given it by the binding strands of silk, saw Retief, gave a convulsive bound which triggered another snap of the claw.

"Stand pat," Retief called softly. "I'll try to distract his attention." He stepped out on a slender branch, which sagged but held. Holding the end of the rope in his free hand, he made his way to within ten feet of the web.

Above, the claw-creature, sensing movement nearby, poked out a glittering eye at the end of a two-foot rod, studied Retief from a distance of five yards. Retief watched the claw, which hovered indecisively ready to strike in either direction.

A baseball-sized fruit was growing within easy reach. Retief plucked it, took aim, and pitched it at the eye. It

struck and burst, spattering the surrounding foliage with a sticky yellow goo and an odor of overripe melon. Quick as thought, the claw struck out straight at Retief as he jumped, gripping the vine, and swung in a graceful Tarzan-style arc across toward a handy landing platform thirty feet distant. The armored meat-eater, thwarted, lunged vainly after him. The sudden strain on the behemoth's overextended grip was too much. There was a noisy rasping of metal-hard hooks against wood, a frantic shaking of branches; then the barrel-shaped body came crashing down and—snapped to a halt with a tremendous jerk as the rope lashed to its leg came up short.

Retief, safely lodged in his new platform, caught a momentary glimpse of an open mouth lined with ranks of multipronged teeth. Then, with a sharp *zong!* the rope supporting the monster parted. The apparition dropped away, smashing its way downward with a series of progressively fainter concussions until it was lost in the depths below.

The bristled Zoonite sagged heavily in the net, watching Retief with a row of shiny eyes like pink shirt buttons as he sawed through the strands of the web with his pocket knife. Freed, it dipped into its hip-pouch with a four-fingered hand encased in a glove, ornamented with polished, inch-long talons, brought out a small cylinder which it raised to its middle eye.

"Hrikk," it said in a soft rasp. A mouth like Jack Pumpkinhead gaped in an unreadable expression. There was a bright flash which made a green after-image dance on Retief's retina. The alien dropped the object back in the pouch, took out a second artifact resembling a foot-long harmonica, which it adjusted on a loop around its neck. At once, it emitted a series of bleeps,

toots and deep, resonant thrums, then looked at Retief in a way which seemed expectant.

"If I'm not mistaken, that's a Groaci electronic translator," Retief said. "Trade goods like the camera, I presume?"

"Correct," the device interpreted the small alien's rasping tones. "By George, it works!"

"The Groaci are second to none, when it comes to miniaturized electronics and real-estate acquisition," Retief said.

"Real estate?" the Zoonite inquired with a rising inflection.

"Planetary surfaces," Retief explained.

"Oh, that. Yes, I'd heard they'd settled in down below. No doubt a pregermination trauma's at the root of the matter. But every being to his own form of self-destruction, as Zerd so succinctly put it before he dissolved himself in fuming nitric acid." The alien's button eyes roved over Retief. "Though I must say your own death-wish takes a curious form."

"Oh?"

"Teasing a vine-jack for a starter," the Zoonite amplified. "That's dangerous, you know. The claw can snip through six inches of *gilv* as though it were a zoob-patty."

"Actually, I got the impression the thing was after you," Retief said.

"Oh, it was, it was. Almost got me, too. Hardly worth the effort. I'd make a disappointing meal." The Zoonite fingered its translator, the decorative claws clicking tinnily on the shiny plastic. "Am I to understand you came to my rescue *intentionally*?" it said.

Retief nodded.

"Whatever for?"

"On the theory that one intelligent being should keep another from being eaten alive, whenever he conveniently can."

"Hmmm. A curious concept. And now I suppose you expect me to reciprocate?"

"If it doesn't inconvenience you," Retief replied.

"But you look so, so edible . . ." Without warning, one of the alien's ebon legs flashed out, talons spread, in a vicious kick. It was a fast stroke, but Retief was faster; shifting his weight slightly, he intercepted the other's shin with the edge of his shoe, eliciting a sharp report. The Zooner yelped, simultaneously lashed out, left-right, with a pair of arms—to meet painful interceptions as Retief struck upward at one with the edge of his hand, down at the other. In the next instant, a small hand gun was pressing into the alien's paunch-bristles.

"We Terries are handy at small manufacturing, too," Retief said easily. "This item is called a crater gun. You'll understand why when you've seen it fired."

". . . but appearances can be so deceiving," the Zoonite finished its interrupted sentence, wringing its numbed limbs.

"A natural mistake," Retief commiserated. "Still, I'm sure you wouldn't have found me any more nourishing than the vine-jack would have found you. Incompatible body chemistry, you know."

"Yes. Well, in that case, I may as well be off." The Zooner backed a step.

"Before you go," Retief suggested, "there are some matters we might discuss to our mutual profit."

"Oh? What, for example?"

"The invasion of Zoon, for one. And ways and means of getting back down to *Zoona Firma* for another."

"You *are* a compulsive. And it's a highly channelized

neurosis: A vine-jack or my humble self won't do; it has to be the hard way."

"I'm afraid your translator is out of adjustment," Retief said. "That doesn't seem to mean anything."

"I find your oblique approach a trifle puzzling, too," the alien confided. "I sense that you're trying to tell me something, but I can't for the life of me guess what it might be. Suppose we go along to my place for an *aperitif*, and possibly we can enlighten each other. By the way, I'm known as Qoj, the Ready Biter."

"I'm Retief, the Occasional Indulger," the Terran said. "Lead the Way, Qoj, and I'll do my best to follow."

V

It was a breathtaking thirty-minute journey through the towering tree tops. The alien progressed by long, curiously dreamlike leaps from one precarious rest to another, while Retief made his way as rapidly as possible along interlacing branches and bridges of tangled vine, keenly aware of the bottomless chasm yawning below.

The trip ended at a hundred-foot spherical space where the growth had been cleared back to create a shady, greenlit cavern. Bowers and leafy balconies were nestled around its periphery; tiny, fragile-looking terraces hung suspended under the shelter of sprays of giant fronds.

There were several dozen Zooners in sight, some lounging on the platforms or perched in stem-mounted chairs which swayed dizzyingly to the light breeze; others sailed gracefully from one roost to another, while a few hung by one or more limbs from festooning vines, apparently sleeping.

"I'll introduce you around," the Zooner said. "Other-

wise the fellows will be taking experimental cracks at you and getting themselves hurt. I'm against that, because an injured Zooner is inclined to be disagreeable company." He flipped a switch on the translator and emitted a sharp cry. Zooner heads turned. Qoj spieled off a short speech, waved a hand at Retief, who inclined his head courteously. The locals eyed the Terran incuriously, went back to their previous activities. Qoj indicated a tiny table mounted atop a ten-foot rod, around which three small seats were arranged, similarly positioned.

Retief hastily scaled the support, took up his seat like a flagpole sitter. Qoj settled in opposite him, the stem quivering and swaying under his weight. He whistled shrilly, and a black-spotted gray creature came sailing in a broad leap, took orders, bounded away, returned in a moment with aromatic flagons.

"Ah." Qoj leaned back comfortably with two pairs of legs crossed. "Nothing like a little bottled Nirvana, eh?" He lifted his flask and poured the contents in past a row of pronged teeth rivaling those of the vine-jack.

"Quite an interesting place you have here." Retief unobtrusively sniffed his drink, sampled it. The fluid evaporated instantly on his tongue, leaving a fruity aroma.

"It's well enough, I suppose," Qoj assented, "under the circumstances."

"What circumstances are those?"

"Not enough to eat. Too many predators—like that fellow you dispatched. Cramped environment—no place to go. And of course, cut off as we are from raw materials, no hope for technological advancement. Let's face it, Retief: we're up the tree without a paddle."

Retief watched a bulky Zooner sail past in one of the feather-light leaps characteristic of the creatures.

"Speaking of technology," he said. "How do you manage that trick?"

"What trick?"

"You must weigh three hundred pounds—but when you want to, you float like a dandelion seed."

"Oh, that. Just an inherent knack, I guess you'd call it. Even our spore-pods have it; otherwise, they'd smash when they hit the ground. It's not much good for anything but short hops, you know."

"Organic antigravity," Retief said admiringly. "Or perhaps teleportation would be a better name."

"The gland responds to mental impulses," Qoj said. "Fortunately, our young have no mentality to speak of, so they're grounded. Otherwise we'd never have a moment's peace."

He tossed another shot down his throat, lounging back in his chair as it swayed past Retief, rebounded to swing in the opposite direction, while Retief's perch waved in gentle counterpoint, a motion which tended to cross the eyes and bring a light sweat to the forehead.

"Oh. I wondered why there were no little ones gamboling about your doorstep," Retief said.

"Doorstep?" Qoj jerked upright and stared in alarm twoard the shaded entrance to his bower. "Great slavering jaws, Retief, don't give me a start like that! The little monsters are down on the surface where they belong!"

"Unattended?"

Qoj shuddered. "I suppose we really ought to be doing something about them, but frankly—it's too dangerous."

Retief raised an eyebrow in polite inquiry.

"Why, the little fiends would strip the very crust off the planet if they weren't able to assuage their voracity by eating each other."

"So that's why you don't occupy the surface."

"Um. If our ancestors hadn't taken to the trees, we'd be extinct by now—devoured by our own offspring."

"And I suppose your apparent indifference to the arrival of the Groaci is based on the same reasoning?"

"Feeding season's about to begin," Qoj said offhandedly. "Those fellows won't last a day. Not much juice in them, though—at least not in the one I met."

"That would be the previous owner of the camera and the translator?"

"Correct. Interesting chap. He was buzzing about in an odd little contrivance with whirling vanes on top and ran afoul a loop of string-vine. My, wasn't he full of plans." The Zooner sipped his flask, musing.

"The Groaci, individually, don't look like much, I'll agree," Retief said. "But they have a rather potent subnuclear arsenal at their command. And it appears they're about to launch a general offensive against your young."

"So? Maybe they'll clear the little nuisances out. Then we can descend to the ground and start living like gentle-beings."

"What about the future of the race?"

"*That* for the future of the race." Qoj made a complicated gesture with obscure biological implications. "We're only concerned about ourselves."

"Still," Retief countered, "you were young once."

"If you're going to be crude," the Zooner said with inebriated dignity, "you may leave me."

"Sure," Retief said. "But before I go, would you mind describing these little fellows?"

"In shape, they're not unlike us adults; they come in all sizes, from this"—Qoj held two taloned fingers an inch apart—"to this." He indicated a yard and a half. "And of course, the baby fur. Ghastly blue fuzz a foot long."

"Did you say . . . blue?"

"Blue."

Retief nodded thoughtfully. "You know, Qoj, I think we have the basis for a cooperative undertaking after all. If you'll give me another five minutes of your time, I'll explain it to you . . . ."

VI

Flanked by Qoj and another Zooner named Ornx the Eager Eater, Retief dropped down through the cloud layer, propelled by a softly hissing steering jet salvaged from his punctured lift harness.

"That's it, dead ahead," he pointed to the towering coral reef, pale rose-colored in the distance.

"Wheel" Qoj squealed with delight as he pulled up abreast of Retief with a shrill whistling of his borrowed jet. "Capital idea, Retief, these little squirt-bottles! You know, I never dreamed flying could be such fun! Always lived in dread of getting out of reach of a branch and just drifting aimlessly until one of the boys or some other predator got me. With these, a whole new dimension opens up! I can already detect a lessening of sibling rivalry drives and inverted Oedipus syndromes!"

"Don't let your released tensions go to your head, Qoj," Retief cautioned. "The Groaci may still take a little managing. You hang back while I go in to check the lie of the land."

Minutes later, Retief swept in above the convoluted surface of the coral peak. No Groaci were to be seen, but half a dozen Terrans were wandering aimlessly about their lofty prison. They ran forward with glad cries as Retief landed.

"Good show, my boy!" Colonel Smartfinger pumped his hand. "I knew you wouldn't leave us stranded here!

Those rascals Groaci commandeered our harnesses."

"But—where are the reinforcements," the political officer demanded, staring around. "Where's the lighter? Where's his excellency? Who are *these* creatures?" He eyed the Zooners, circling for a landing. "Where have you been, Retief?" He broke off, staring. "And where's your harness?"

"I'll tell you later." Retief motioned the diplomats toward the deflated Groaci gasbag now draped limply across the rocks. "There's no time to dally, I'm afraid. All aboard."

"But—it's punctured!" Smartfinger protested. "It certainly won't fly, man!"

"It will when our new allies finish," Retief diligently reassured the colonel.

The Zooners were already busy, bustling about the ersatz cloud, stuffing fistfuls of seed-pods inside. A corner of it stirred lazily, lifted to flap gently in the breeze. One side curled upward, tugging gently.

"You know what to do," Retief called to Qoj. "Don't waste any time following me down." He jumped into the air, thumbed the jet control wide open, and headed for the next stop at flank speed.

Two thirds of the way down the sheer wall of the coral reef, a small figure caught Retief's eye, perched disconsolately in a crevice on the rock. He swung closer, saw the spindly shanks and five-eyed visage of a Groaci, his once-splendid raiment in tatters.

"Well, Field Marshal Shish," he called. "What's the matter, conditions down below not to your liking?"

"Ambassador Shish, if you please," the castaway hissed in sorrowful Groaci. "To leave me in solitude, soft one; to have suffered enough."

"Not nearly enough," Retief contradicted. "However,

all is not yet lost. I take it your valiant troops have encountered some sort of difficulty below?"

"The spawn of the pits fell upon us while I was in my bath!" the Groaci whispered, speaking Terran now. "They snapped up a dozen of my chaps before I could spring from the tub of hot sand in which I had been luxuriating! I was fortunate to escape with my life! And then your shoddy Terran-made harness failed and dropped me here. Alack! Gone are the dreams of a procuratorship."

"Maybe not." Retief maneuvered in close, held out a hand. "I'll give you a piggy back and explain how matters stand. Maybe you can still salvage something from the wreckage."

Shish canted his eye-stalks. "Piggyback? Are you insane, Retief? Why, there's nothing holding you up! How can it hold *two* of us?"

"Take it or leave it, Mr. Ambassador," Retief said. "I have a tight schedule."

"I'll take it." Shish gingerly swung his scrawny frame out and scrambled to a perch on Retief's back, four of his eyes sphinctered tight shut. "But if I hadn't already been contemplating suicide, nothing would have coaxed me to it."

VII

Five minutes later, Retief heard a hail. He dropped down, settled onto a narrow ledge beside the slight figure of Ambassador Oldtrick.

The senior diplomat had lost his natty beret, and there was a scratch on his cheek. His flight harness, its gasbag flat, hung on a point of rock behind him.

"What's this? Who's captured whom? Retief, are you . . . ?"

"Everything's fine, your excellency," Retief said soothingly. "I'll just leave his Groacian excellency here with you. I've had a little talk with him, and he has something he wants to tell you. The staff will be along in a moment, to help out."

"But—you can't—" Oldtrick broke off as a dark shadow flitted across the rock. "Duck! It's that confounded cloud back again!"

"It's all right," Retief called as he launched himself into space. "It's on our side now."

At the long table in the main dining room aboard the heavy Corps transport which had been called in to assist in the repatriation of the Groaci Youth Scouts marooned on Zoon after the local fauna had devoured their ship and supplies, Magnan nudged Retief.

"Rather a surprising about-face on the part of Ambassador Shish," he muttered. "When that fake cloud dumped us off on the rock ledge with him, I feared the worst."

"I think he'd had a spiritual experience down below that made him see the light," Retief suggested.

"Quite an equitable division of spheres of influence the ambassadors agreed on," Magnan went on. "The Groaci seem quite pleased with the idea of erecting blast-proof barriers to restrain those ferocious little eaters to one half the planet, and acting as herdsmen over them, in return for the privilege of collecting their hair when they moult."

"I wouldn't be surprised if they didn't sneak out a few pelts beforehand." Colonel Smartfinger leaned to contribute. "Still, the Zooners don't seem to mind, eh, Ornx?"

"No problem," the Zooner said airily. "We're glad to

wink at a few little violations in return for free access to our own real estate."

There was a sharp dinging as Ambassador Oldtrick rose and tapped his glass with a fork.

"Gentlemen—gentlebeings, I should say." He smirked at the Groaci and Zooners seated along the board. "It's my pleasure to announce the signing of the Terran-Zoon accord, under the terms of which we've been ceded all rights in the coral reef of our choice on which to place our chancery, well out of reach of those nasty little—that is, the untutored—I mean, er, playfully inclined . . ." He quailed under the combined glares of a dozen rows of pink eyes.

"If he brings those abominations into the conversation again, I'm walking out," Qoj said loudly.

"So we're going to be relegated to the top of that dreadful skyscraper?" Magnan groaned. "We'll be commuting by patent gasbag."

"Ah!" Oldtrick brightened, glad of a change of subject. "I couldn't help overhearing your remark, Magnan. And I'm pleased to announce that I have just this afternoon developed a startling new improvement to my flight harness. Observe!" All eyes were on the ambassador as he rose gently into the air, hung, beaming from a height of six feet.

"I should mention that I had some assistance from Mr. Retief in, ah, working out some of the technicalities," he murmured as the Terrans crowded around, competing for the privilege of offering their congratulations.

"Heavens! And he's not even wearing a balloon!" Magnan gasped. "How do you suppose he does it?"

"Easy," Qoj grunted. "He's got a pocketful of prize-quality Zooner spore-pods."

Beside him, Ambassador Shish gave an annoyed hiss.

"Somehow, I can't escape the conviction that we Groaci have been had again." He rose, leaving the room.

"Hmph," Magnan sniffed. "He got what he wanted, didn't he?"

"True," Retief said, rising. "But it's some people's ill luck to always want the wrong thing."

AT THE CORE

by Larry Niven

I

I couldn't decide whether to call it a painting, a relief mural, a sculpture or a hash; but it was the prize exhibit in the Art Section of the Institute of Knowledge on Jinx. The Kdatlyno must have strange eyes, I thought. My own were watering. The longer I looked at "FTL-SPACE," the more blurred it got.

I'd tentatively decided that it was *supposed* to look blurred when a set of toothy jaws clamped gently on my arm. I jumped a foot in the air. A soft, thrilling contralto voice said, "Beowulf Shaeffer, you are a spendthrift."

That voice would have made a singer's fortune. And I thought I recognized it—but it couldn't be; *that* one was on We Made It, light-years distant. I turned.

The puppeteer had released my arm. It went on: "And what do you think of Hrodenu?"

"He's ruining my eyes."

"Naturally. The Kdatlyno are blind to all but radar. 'FTL-SPACE' is meant not to be seen but to be touched. Run your tongue over it."

"My tongue? No, thanks." I tried running my hand over it. If you want to know what it felt like, hop a ship for Jinx; the thing's still there. I flatly refuse to describe the sensation.

The puppeteer cocked its heads dubiously. "I'm sure your tongue is more sensitive. No guards are near."

"Forget it. You know, you sound just like the regional president of General Products on We Made It."

"It was he who sent me your dossier, Beowulf Shaeffer. No doubt we had the same English teacher. I am the regional president on Jinx, as you no doubt recognized from my mane."

Well, not quite. A puppeteer is best described as a three legged centaur with two flat, brainless heads mounted on long, sinuous necks. The mouths also function as hands, and very well, too. The mane, which runs from the tail forward to become an auburn mop over the brain case between the necks, is supposed to show caste once you learn to discount variations of mere style. To do that you have to be a puppeteer. Instead of admitting my ignorance, I asked, "Did that dossier say I was a spendthrift?"

"You have spent more than a million stars in the past four years."

"And loved it."

"Yes. You will shortly be in debt again. Have you thought of doing more writing? I admired your article on the neutron star BVS-1. 'The pointy bottom of a gravity well' . . . 'blue starlight fell on me like intangible sleet' . . . lovely."

"Thanks. It paid well, too. But I'm mainly a spaceship pilot."

"It is fortunate, our meeting here. I had thought of having you found. Do you wish a job?"

That was a loaded question. The last and only time I took a job from a puppeteer, the puppeteer blackmailed me into it, knowing it would probably kill me. It almost did. I didn't hold that against the regional president of We Made It. In fact, *I* blackmailed him back when he let it slip that the puppeteer home planet has no moon. The puppeteers, constitutional cowards all, go to great lengths to keep the galaxy-at-large from finding that world. But to let them have another crack at me—?

"I'll give you a conditional Maybe. Do you have the idea I'm a professional suicide pilot?"

"Not at all. If I show details, do you agree that the information shall be confidential?"

"I do," I said formally, knowing it would commit me. A verbal contract is as binding as the tape it's recorded on.

"Good. Come." He pranced toward a transfer booth.

The transfer booth let us out somewhere in Jinx's vacuum regions. It was night. High in the sky, Sirius B was a painfully bright pinpoint casting vivid blue moonlight on a ragged lunar landscape. I looked up and didn't see Binary, Jinx's bloated orange companion planet, so we must have been in the Farside End.

But there was something hanging over us.

A #4 General Products hull is a transparent sphere a thousand-odd feet in diameter. No bigger ship has been built anywhere in the known galaxy. It takes a government to buy one, and they are used for colonization projects only. But this one could never have been so used. It was all machinery. Our transfer booth stood between two of the landing legs, so that the swelling flank of the ship looked down on us as an owl looks down at a mouse. An access tube ran through vacuum from the booth to the airlock.

I said, "Does General Products build complete spacecraft nowadays?"

"We are thinking of branching out. But there are problems."

From the viewpoint of the puppeteer-owned company, it must have seemed high time. General Products makes the hulls for ninety-five per cent of all ships in space, mainly because nobody else knows how to build an indestructible hull. But they'd made a bad start with this ship. The only room I could see for crew, cargo or passengers was a few cubic yards of empty space right at the bottom, just above the airlock. And it seemed to be just big enough for a pilot.

"You'd have a hard time selling that," I said.

"True. Do you notice anything else?"

"Well. . . ." The hardware which filled the transparent hull was very tightly packed. The effect was as if a race of ten-mile-tall giants had striven to achieve miniaturization. I saw no sign of access tubes; hence there could be no in-space repairs. Four reaction motors poked their appropriately huge nostrils through the hull, angled outward from the bottom. No small attitude jets; hence, oversized gyros inside. Otherwise. . . . "Most of it looks like hyper-drive motors. But that's silly. Unless you've thought of a good reason for moving moons around?"

"At one time you were a commercial pilot for Nakamura Lines. How long was the run from Jinx to We Made It?"

"Twelve days if nothing broke down." Just long enough to get to know the prettiest passenger aboard, while the autopilot did everything for me but wear my uniform.

"Sirius to Procyon is a distance of four light-years. Our ship would be able to make the trip in five minutes."

"You've lost your mind."

"No."

But—that was almost a light-year per minute! I couldn't visualize it. Then suddenly I did visualize it, and my mouth fell open, for what I saw was the galaxy opening before me. We know so little beyond our own small neighborhood of the galaxy. But with a ship like that—!

"That's goddam fast."

"As you say. But the equipment is bulky, as you note. It cost seven billion stars to build that ship, discounting centuries of research, but it will only move one man. As is, the ship is a failure. Shall we go inside and take a look?"

II

The lifesystem was two circular rooms, one above the other, with a small airlock to one side. The lower room was the control room, with banks of switches and dials and blinking lights dominated by a huge spherical mass pointer. The upper room was bare walls, transparent, through which I could see air- and food-producing equipment.

"This will be the relaxroom," said the puppeteer. "We decided to let the pilot decorate it himself."

"Why me?"

"Let me further explain the problem." The puppeteer began to pace the floor. I hunkered down against the wall and watched. Watching a puppeteer move is a pleasure. Even in Jinx's gravity the deerlike body seemed weightless, the tiny hooves tapping the floor at random. "The human sphere of colonization is some thirty light-years across, is it not?"

"Maximum. It's not exactly a sphere—"

"The puppeteer region is much smaller. The Kdatlyno sphere is half the size of yours, and the kzinti is fractionally larger. These are the important space-traveling species. We must discount the Outsiders since they do not use ships. Some spheres coincide, naturally. Travel from one sphere to another is nearly nil except for ourselves, since our sphere of influence extends to all who buy our hulls. But add all these regions, and you have a region sixty light-years across. This ship could cross it in seventy-five minutes. Allow six hours for takeoff and six for landing, assuming no traffic snarls near the world of destination, and we have a ship which can go anywhere in thirteen hours but nowhere in less than twelve, carrying one pilot and no cargo, costing seven billion stars."

"How about exploration?"

"We puppeteers have no taste for abstract knowledge. And how should we explore?" Meaning that whatever race flew the ship would gain the advantages thereby. A puppeteer wouldn't risk his necks by flying it himself. "What we need is a great deal of money and a gathering of intelligences, to design something which *may* go slower but *must* be less bulky. General Products does not wish to spend so much on something that may fail. We will require the best minds of each sentient species and the richest investors. Beowulf Shaeffer, we need to attract attention."

"A publicity stunt?"

"Yes. We wish to send a pilot to the center of the galaxy and back."

"Ye . . . gods! Will it go *that* fast?"

"It would require some twenty-five days to reach the center and an equal time to return. You can see the reasoning behind—"

"It's perfect. You don't need to spell it out. Why me?"

"We wish you to make the trip and then write of it. I have a list of pilots who write. Those I have approached have been reluctant. They say that writing on the ground is safer than testing unknown ships. I follow their reasoning."

"Me too."

"Will you go?"

"What am I offered?"

"One hundred thousand stars for the trip. Fifty thousand to write the story, in addition to what you sell it for."

"Sold."

From then on, my only worry was that my new boss would find out that someone had ghostwritten that neutron star article.

Oh, I wondered at first why General Products was willing to trust me. The first time I worked for them I tried to steal their ship, for reasons which seemed good at the time. But the ship I now called *Long Shot* really wasn't worth stealing. Any potential buyer would know it was hot; and what good would it be to him? *Long Shot* could have explored a globular cluster; but her only other use was publicity.

Sending her to the Core was a masterpiece of promotion.

Look: it was twelve days from We Made It to Jinx by conventional craft, and twelve hours by *Long Shot.* What's the difference? You spent twelve years saving for the trip. But the Core! Ignoring refueling and reprovisioning problems, my old ship could have reached the galaxy's Core in three hundred years. No known species had ever *seen* the Core! It hid behind layer on layer of tenuous gas and dust clouds. You can find libraries of literature on those central stars, but they all

consist of generalities and educated guesses based on observation of other galaxies, like Andromeda.

Three centuries dropped to less than a month! There's something anyone can grasp. And with pictures!

The lifesystem was finished in a couple of weeks. I had them leave the control room walls transparent and paint the relaxroom solid blue, no windows. When they finished I had entertainment tapes and everything it takes to keep a man sane for seven weeks in a room the size of a large closet.

On the last day the puppeteer and I spoke the final version of my contract. I had four months to reach the galaxy's center and return. The outside cameras would run constantly; I was not to interfere with them. If the ship suffered a mechanical failure I could return before reaching the center, otherwise, no. There were penalties. I took a copy of the tape to leave with a lawyer.

"There is a thing you should know," the puppeteer said afterward. "The direction of thrust opposes the direction of hyperdrive."

"I don't get it."

The puppeteer groped for words. "If you turned on the reaction motors and the hyperdrive together, the flames would precede your ship through hyperspace."

I got the picture then. Backward into the unknown. With the control room at the ship's bottom, it made sense. To a puppeteer, it made sense.

III

And I was off.

I went up under two standard gees because I like my comfort. For twelve hours I used only the reaction motors. It wouldn't do to be too deep in a gravity well

when I used a hyperdrive, especially an experimental one. Pilots who do that never leave hyperspace. The relaxroom kept me entertained until the bell rang. I slipped down to the control room, netted myself down against free fall, turned off the motors, rubbed my hands briskly together, and turned on the hyperdrive.

It wasn't quite like I'd expected.

I couldn't see out, of course. When the hyperdrive goes on it's like your blind spot expanding to take in all the windows. It's not just that you don't see anything; you forget that there's anything to see. If there's a window between the kitchen control bank and your print of Dali's "Spain," your eye and mind will put the picture right next to the kitchen bank, obliterating the space between. It takes getting used to, in fact it has driven people insane, but that wasn't what bothered me. I've spent thousands of man-hours in hyperspace. I kept my eye on the mass pointer.

The mass pointer is a big transparent sphere with a number of blue lines radiating from the center. The direction of the line is the direction of a star; its length shows the star's mass. We wouldn't need pilots if the mass pointer could have been hooked into an autopilot, but it can't. Dependable as it is, accurate as it is, the mass pointer is a psionic device. It needs a mind to work. I'd been using mass pointers for so long that those lines were like real stars.

A star came toward me, and I dodged around it. I thought that another line that didn't point *quite* straight ahead was long enough to show dangerous mass, so I dodged. That put a blue dwarf right in front of me. I shifted fast and looked for a throttle. I wanted to slow down.

Repeat, *I wanted to slow down.*

Of course there was no throttle. Part of the puppeteer

research project would be designing a throttle. A long, fuzzy line reached for me: a protosun. . . .

Put it this way: imagine one of Earth's freeways. You must have seen pictures of them from space, a tangle of twisting concrete ribbons, empty and abandoned but never torn down. Some lie broken; others are covered with houses. People use the later rubberized ones for horseback riding. Imagine the way one of these must have looked about six o'clock on a week night in, say, nineteen seventy. Ground-cars from end to end.

Now, let's take all these cars and remove the brakes. Further, let's put governors on the accelerators, so that the maximum speeds are between sixty and seventy miles per hour, not all the same. Let something be wrong with all the governors at once, so that the maximum speed also becomes the minimum. You'll begin to see signs of panic. . . .

Ready? Okay. Get a radar installed in your car, paint your windshield and windows jet black, and get out on that freeway.

It was like that.

It didn't seem so bad at first. The stars kept coming at me, and I kept dodging, and after awhile it settled down to a kind of routine. From experience I could tell at a glance whether a star was heavy enough and close enough to wreck me. But in Nakamura Lines I'd only had to take that glance every six hours or so. Here I didn't dare look away. As I grew tired the near-misses came closer and closer. After three hours of it I had to drop out.

The stars had a subtly unfamiliar look. With a sudden jar I realized that I was entirely out of known space. Sirius, Antares—I'd never recognize them from here; I

wasn't even sure they were visible. I shook it off and called home.

"*Long Shot* calling General Products, *Long Shot* calling—"

"Beowulf Shaeffer?"

"Have I ever told you what a lovely, sexy voice you have?"

"No. Is everything going well?"

"I'm afraid not. In fact, I'm not going to make it."

A pause. "Why not?"

"I can't keep dodging these stars forever. One of them's going to get me if I keep on much longer. The ship's just too goddam fast."

"Yes. We must design a slower ship."

"I hate to give up that good pay, but my eyes feel like peeled onions. I ache all over. I'm turning back."

"Shall I play your contract for you?"

"No. Why?"

"Your only legal reason for returning is a mechanical failure. Otherwise you forfeit twice your pay. Jinx has recently adopted the debtor's prison."

I said, "Mechanical failure?" There was a tool box somewhere in the ship, with a hammer in it. . . .

"I did not mention it before, since it did not seem polite, but two of the cameras are in the lifesystem. We had thought to use films of you for purposes of publicity, but—"

"I see. Tell me one thing, just one thing. When the regional president of We Made It sent you my name, did he mention that I'd discovered your planet has no moon?"

"Yes, he did mention that matter. You accepted one million stars for your silence. He naturally has a recording of the bargain."

"I see." So that's why they'd picked Beowulf Shaeffer,

well known author. "The trip'll take longer than I thought."

"You must pay a penalty for every extra day over four months. Two thousand stars per day late."

"Your voice has acquired an unpleasant grating sound. Good-by."

I went on in. Every hour I shifted to normal space for a ten-minute coffee break. I dropped out for meals, and I dropped out for sleep. Twelve hours per ship's day I spent traveling, and twelve trying to recover. It was a losing battle.

By the end of day two I knew I wasn't going to make the four month limit. I might do it in six months, forfeiting one hundred and twenty thousand stars, leaving me almost where I started. Serves me right for trusting a puppeteer!

Stars were all around me, shining through the floor and between the banked instruments. I sucked coffee, trying not to think. The Milky Way shone ghostly pale between my feet. The stars were thick now; they'd get thicker as I approached the Core, until finally one got me.

An idea! And about time, too.

The golden voice answered immediately. "Beowulf Shaeffer?"

"There's nobody else here, honey. Look, I've thought of something. Would you send—"

"Is one of your instruments malfunctioning, Beowulf Shaeffer?"

"No, they all work fine, as far as they go. Look—"

"Then what could you possibly have to say that would require my attention?"

"Honey, now is the time to decide. Do you want revenge, or do you want your ship back?"

A small silence. Then, "You may speak."

"I can reach the Core much faster if I first get into one of the spaces between the arms. Do we know enough about the galaxy to know where our arm ends?"

"I will send to the Institute of Knowledge to find out."

"Good."

Four hours later I was dragged from a deathlike sleep by the ringing of the hyperphone. It was not the president, but some flunky. I remembered calling the puppeteer Honey last night, tricked by my own exhaustion and that seductive voice, and wondered if I'd hurt his puppeteer feelings. "He" might be male; a puppeteer's sex is one of his little secrets. The flunky gave me a bearing and distance for the nearest gap between stars.

It took me another day to get there. When the stars began to thin out I could hardly believe it. I turned off the hyperdrive, and it was true. The stars were tens and hundreds of light-years apart. I could see part of the Core peeking in a bright rim above the dim flat cloud of mixed dust and stars.

IV

From then on it was better. I was safe if I glanced at the mass pointer every ten minutes or so. I could forget the rest breaks, eat meals and do isometrics while watching the pointers. For eight hours a day I slept, but during the other sixteen I moved. The gap swept toward the Core in a narrowing curve, and I followed it.

As a voyage of exploration the trip would have been a fiasco. I saw nothing; I stayed well away from anything worth seeing. Stars and dust, anomalous wispy clusters shining in the dark of the gap, invisible indications that might have been stars—my cameras picked

them up from a nice, safe distance, showing tiny blobs of light. In three weeks I moved seventeen thousand light-years toward the Core.

The end of those three weeks was the end of the gap. Before me was an uninteresting wash of stars backed by a wall of opaque dust clouds. I still had thirteen thousand light-years to go before I reached the center of the galaxy.

I took some pictures and moved in.

Ten minute breaks, mealtimes that grew longer and longer for the rest they gave, sleep periods that left my eyes red and burning. The stars were thick, and the dust was thicker, so that the mass pointer showed a blur of blue broken by sharp blue lines. The lines began to get less sharp. I took breaks every half hour. . . .

Three days of that.

It was getting near lunchtime on the fourth day. I sat watching the mass pointer, noting the fluctuations in the blue blur which showed the changing density of the dust around me. Suddenly it faded out completely. Great! Wouldn't it be nice if the mass pointer went out on me? But the sharp starlines were still there, ten or twenty of them pointing in all directions. I went back to steering. The clock chimed to indicate a rest period. I sighed happily and dropped into normal space.

The clock showed I had half an hour to wait for lunch. I thought about eating anyway, decided against it. The routine was all that kept me going. I wondered what the sky looked like, reflexively looked up so I wouldn't have to look down at the transparent floor. That big an expanse of hyperspace is hard even on trained eyes. I remembered I wasn't in hyperspace and looked down.

For a time I just stared. Then, without taking my eyes off the floor, I reached for the hyperphone.

"Beowulf Shaeffer?"

"No, this is Albert Einstein. I stowed away when the *Long Shot* took off, and I've decided to turn myself in for the reward."

"Giving misinformation is an implicit violation of contract. Why have you called?"

"I can see the Core."

"That is not a reason to call. It was implicit in your contract that you could see the Core."

"Dammit, don't you care? Don't you want to know what it looks like?"

"If you wish to descibe it now, as a precaution against accident, I will switch you to a dictaphone. However, if your mission is not totally successful, we cannot use your recording."

I was thinking up a really searing answer when I heard the click. Great, my boss had hooked me into a dictaphone. I said one short sentence and hung up.

The Core.

Gone were the obscuring masses of dust and gas. A billion years ago they must have been swept up for fuel by the hungry, crowded stars. The Core lay before me like a great jeweled sphere. I'd expected it to be a gradual thing, a thick mass of stars thinning out into the arms. There was nothing gradual about it. A clear ball of multi-colored light five or six thousand light-years across nestled in the heart of the galaxy, sharply bounded by the last of the dust clouds. I was ten thousand four hundred light-years from the center.

The red stars were the biggest and brightest. I could actually pick some of them out as individuals. The rest was a finger painting in fluorescent green and blue. But those red stars . they would have sent Aldebaran back to kindergarten.

It was all so *bright.* I needed the telescope to see black between the stars. . . .

I'll *show* you how bright it was.

Is it night where you are? Step outside and look at the stars. What color are they? Antares may show red, if you're near enough; in the System, so will Mars. Sirius may show bluish. But all the rest are white pinpoints. Why? Because it's *dark.* Your day vision is in color, but at night you see black-and-white, like a dog.

The Core suns were bright enough for color vision.

I'd pick a planet here! Not in the Core itself, but right out here, with the Core on one side and on the other, the dimly starred dust clouds forming their strange convoluted curtain. Man, what a view! Imagine that flaming jeweled sphere rising in the east, hundreds of times as big as Binary shows on Jinx, but without the constant feeling Binary gives you, the fear that the orange world will fall on you; for the vast, twinkling Core is only starlight, lovely and harmless. I'd pick my world *now* and stake a claim. When the puppeteers got their drive fixed up, I'd have the finest piece of real estate in the known universe! If I could only find a habitable planet.

If only I could find it twice.

Hell, I'd be lucky to find my way *home* from here. I shifted into hyperspace and went back to work.

V

An hour and fifty minutes, one lunch break and two rest breaks, and fifty light-years later, I noticed something peculiar in the Core.

It was even clearer then, if not much bigger; I'd passed through the almost transparent wisps of the last

dust cloud. Not too near the center of the sphere was a patch of white, bright enough to make the green and blue and red look dull around it. I looked for it again at the next break, and it was a little brighter. It was brighter again at the next break. . . .

"Beowulf Shaeffer?"

"Yah. I—"

"Why did you use the dictaphone to call me a cowardly, two-headed, monster?"

"You were off the line. I *had* to use the dictaphone."

"That is sensible. Yes. We puppeteers have never understood your attitude toward a natural caution." My boss was peeved, though you couldn't tell from his voice.

"I'll go into that if you like, but it's not why I called."

"Explain, please."

"I'm all for caution. Discretion is the better part of valor, and like that. You can even be good businessmen, because it's easier to survive with lots of money. But you're so damn concerned with various kinds of survival that you aren't even interested in something that isn't a threat. Nobody but a puppeteer would have turned down my offer to describe the Core."

"You forget the kzinti."

"Oh, the kzinti." Who expects rational behavior from kzinti? You whip them when they attack, you reluctantly decide not to exterminate them, you wait till they build up their strength, and when they attack you whip 'em again. Meanwhile you sell them food-stuffs and buy their metals and employ them where you need good games theorists. It's not as if they were a real threat. They'll always attack before they're ready.

"The kzinti are carnivores. Where we are interested in survival, carnivores are interested in meat alone. They conquer because subject people can supply them with

food. They cannot do menial work. Animal husbandry is alien to them. They must have slaves or be barbarians roaming the forests for meat. Why should they be interested in what you call abstract knowledge? Why should any thinking being, if the knowledge has no chance of showing a profit? In practice, your description of the Core would attract only an omnivore."

"You'd make a good case, if it were not for the fact that most sentient races are omnivores."

"We have thought long and hard on that."

Ye cats. I was going to have to think long and hard on *that.*

"Why did you call, Beowulf Shaeffer?"

Oh, yeah. "Look, I know you don't want to know what the Core looks like, but I see something that might represent personal danger. You have access to information I don't. May I proceed?"

"You may."

Hah! I was learning to think like a puppeteer. Was that good? I told my boss about the blazing, strangely shaped white patch in the Core. "When I turned the telescope on it, it nearly blinded me. Grade two sunglasses don't give any details at all. It's just a shapeless white patch, but so bright that the stars in front look like black dots with colored rims. I'd like to know what's causing it."

"It sounds very unusual." Pause. "Is the white color uniform? Is the brightness uniform?"

"Just a sec." I used the scope again. "The color is, but the brightness isn't. I see dimmer areas inside the patch. I think the center is fading out."

"Use the telescope to find a nova star. There ought to be several in such a large mass of stars."

I tried it. Presently I found something: a blazing disk of a peculiar blue-white color with a dimmer, somewhat

smaller red disk half in front of it. That *had* to be a nova. In the core of Andromeda galaxy, and in what I'd seen of our own Core, the red stars were the biggest and brightest.

"I've found one."

"Comment."

A moment more and I saw what he meant. "It's the same color as the Patch. Something like the same brightness, too. But what could make a patch of supernovas go off all at once?"

"You have studied the Core. The stars of the Core are an average of half a light-year apart. They are even closer near the center, and no dust clouds dim their brightness. When stars are that close they shed enough light on each other to materially increase each other's temperature. Stars burn faster and age faster in the Core."

"I see that."

"Since the Core stars age faster, a much greater portion are near the supernova stage than in the arms. Also, all are hotter considering their respective ages. If a star were a few millennia from the supernova stage, and a supernova exploded half a light-year away, estimate the probabilities."

"They might both blow. Then the two could set off a third, and the three might take a couple more . . ."

"Yes. Since a supernova lasts on the order of one human stardard year, the chain reaction would soon die out. Your patch of light must have occurred in this way."

"That's a relief. Knowing what did it, I mean. I'll take pictures going in."

"As you say." Click.

The Patch kept expanding as I went in, still with no

more shape than a veil nebula, getting brighter and bigger. It hardly seemed fair, what I was doing. The light which the patch novas had taken fifty years to put out, I covered in an hour, moving down the beam at a speed which made the universe itself seem unreal. At the fourth rest period I dropped out of hyperspace, looked down through the floor while the cameras took their pictures, glanced away from the Patch for a moment, and found myself blinded by tangerine afterimages. I had to put on a pair of grade one sunglasses, out of the packet of twenty which every pilot carries for working near suns during takeoff and landing.

It made me shiver, to think that the Patch was still nearly ten thousand light-years away. Already the radiation must have killed all life in the Core, if there ever had been life there.

My instruments on the hull showed radiation like a solar flare.

At the next stop I needed grade two sunglasses. Somewhat later, grade three. Then four. The Patch became a great bright amoeba reaching twisting tentacles of fusion fire deep into the vitals of the Core. In hyperspace the sky was jammed bumper to bumper, so to speak; but I never thought of stopping. As the Core came closer the Patch grew like something alive, something needing ever more food. I think I knew, even then.

Night came. The control room was a blaze of light. I slept in the relaxroom, to the tune of the laboring temperature control. Morning, and I was off again. The radiation meter snarled its death song, louder during each rest break. If I'd been planning to go outside I would have dropped that plan. Radiation couldn't get through a General Products hull. Nothing else does, either, except visible light.

I spent a bad half hour trying to remember whether

one of the puppeteers' customers saw X rays. I was afraid to call up and ask.

The mass pointer began to show a faint blue blur. Gases thrown outward from the Patch. I had to keep changing sunglasses . . .

Sometime during the morning of the next day, I stopped.

There really was no point in going further.

"Beowulf Shaeffer, have you become attached to the sound of my voice? I have other work than supervising your progress."

"I would like to deliver a lecture on abstract knowledge!"

"Surely it can wait until your return."

"The galaxy is exploding."

There was a strange noise. Then: "Repeat, please."

"Have I got your attention?"

"Yes."

"Good. I think I know the reason so many sentient races are omnivores. Interest in abstract knowledge is a symptom of pure curiosity. Curiosity must be a survival trait."

"Must we discuss this? Very well. You may well be right. Others have made the same suggestion, including puppeteers. But how has our species survived at all?"

"You must have some substitute for curiosity. Increased intelligence, maybe. You've been around long enough to develop it. Our hands can't compare with your mouths for tool building. If a watchmaker had taste and smell in his hands, he still wouldn't have the strength of your jaws or the delicacy of those knobs around your lips. When I want to know how old a sentient race is, I watch what it uses for hands and feet."

"Yes. Human feet are still adapting to their task of keeping you erect. You propose then, that our intelligence has grown sufficiently to insure our survival without depending on your hit-or-miss method of learning everything you can for the sheer pleasure of learning."

"Not quite. Our method is better. If you hadn't sent me to the Core for publicity you'd never have known about this."

"You say the galaxy is exploding."

"Rather, it finished exploding some nine thousand years ago. I'm wearing grade twenty sunglasses, and it's still too bright. A third of the Core is gone already. The Patch is spreading at nearly the speed of light. I don't see that anything can stop it until it hits the gas clouds beyond the Core."

There was no comment. I went on. "A lot of the inside of the Patch has gone out, but all of the surface is new novas. And remember, the light I'm seeing is nine thousand years old. Now, I'm going to read you a few instruments. Radiation, two hundred and ten. Cabin temperature normal, but you can hear the whine of the temperature control. The mass indicator shows nothing but a blur ahead. I'm turning back."

"Radiation two hundred and ten? How far are you from the edge of the Core?"

"About four thousand light-years, I think. I can see plumes of incandescent gas starting to form in the near side of the Patch, moving toward galactic north and south. It reminds me of something. Aren't there pictures of exploding galaxies in the Institute?"

"Many. Yes, it has happened before. Beowulf Shaeffer, this is bad news. When the radiation from the Core reaches our worlds, it will sterilize them. We puppeteers will soon need considerable amounts of money. Shall I release you from your contract, paying you nothing?"

I laughed. I was too surprised even to get mad. "No."

"Surely you do not intend to enter the Core?"

"No. Look, why do you—"

"Then by the conditions of our contract, you forfeit."

"Wrong again. I'll take pictures of these instruments. When a court sees the readings on the radiation meter and the blue blur in the mass indicator, they'll *know* something's wrong with them."

"Nonsense. Under evidence drugs you will explain the readings."

"Sure. And the court will know you tried to get me to go right to the center of that holocaust. You know what they'll say to that?"

"But how can a court of law find against a recorded contract?"

"The point is they'll want to. Maybe they'll decide that we're both lying, and the instruments really did go haywire. Maybe they'll find a way to say the contract was illegal. But they'll find against you. Want to make a side bet?"

"No. You have won. Come back."

VI

The Core was a lovely multicolored jewel when it disappeared below the lens of the galaxy. I'd have liked to visit it some day; but there aren't any time machines.

I'd penetrated nearly to the Core in something like a month. I took my time coming home, going straight up along galactic north and flying above the lens where there were no stars to bother me, and still made it in two. All the way I wondered why the puppeteer had tried to cheat me at the last. *Long Shot*'s publicity would have been better than ever; yet the regional president had been willing to throw it away just to leave me

broke. I couldn't ask why, because nobody was answering my hyperphone. Nothing I knew about puppeteers could tell me. I felt persecuted.

My come-hither brought me down at the base in the Farside End. Nobody was there. I took the transfer booth back to Sirius Mater, Jinx's biggest city, figuring to contact General Products, turn over the ship and pick up my pay.

More surprises awaited me.

1) General Products had paid one hundred and fifty thousand stars into my account in the Bank of Jinx. A personal note stated that whether I wrote my article was solely up to me.

2) General Products has disappeared. They are selling no more spacecraft hulls. Companies with contracts have had their penalty clauses paid off. It all happened two months ago, simultaneously on all known worlds.

3) The bar I'm in is on the roof of the tallest building in Sirius Mater, more than a mile above the streets. Even from here I can hear the stock market crashing. It started with the collapse of spacecraft companies with no hulls to build ships. Hundreds of others have followed. It takes a long time for an interstellar market to come apart at the seams, but, as with the Core novas, nothing can stop the chain reaction.

4) The secret of the indestructible General Products hull is being advertised for sale. General Products' human representatives will collect bids for one year, no bid to be less than one trillion stars. Get in on the ground floor, folks.

5) Nobody knows anything. That's what's causing most of the panic. It's been a month since a puppeteer was seen on any known world. Why did they drop so suddenly out of interstellar affairs?

I know.

In twenty thousand years a flood of radiation will wash over this region of space. Thirty thousand light-years may seem a long, safe distance, but it isn't, not with this big an explosion. I've asked. The Core explosion will make this galaxy uninhabitable to any known form of life.

Twenty thousand years *is* a long time. It's four times as long as human written history. We'll all be less than dust before things get dangerous, and I for one am not going to worry about it.

But the puppeteers are different. They're scared. They're getting out right now. Paying off their penalty clauses and buying motors and other equipment to put in their indestructible hulls will take so much money that even confiscating my puny salary would have been a step to the good. Interstellar business can go to hell; from now on the puppeteers will have no time for anything but running.

Where will they go? Well, the galaxy is surrounded by a halo of small globular clusters. The ones near the rim might be safe. Or the puppeteers may even go as far as Andromeda. They have the *Long Shot* for exploring, if they come back for it, and they can build more. Outside the galaxy is space empty enough even for a puppeteer pilot, if he thinks his species is threatened.

It's a pity. This galaxy will be dull without puppeteers. Those two-headed monsters were not only the most dependable faction in interstellar business; they were like water in a wasteland of more-or-less humanoids. It's too bad they aren't brave, like us.

But is it?

I never heard of a puppeteer refusing to face a problem. He may merely be deciding how fast to run, but he'll never pretend the problem isn't there. Sometime

within the next twenty millennia, we humans will have to move a population which already numbers forty-three billion. How? To where? When *should* we start thinking about this? When the glow of the Core begins to shine through the dust clouds?

Maybe men are the cowards—at the core.

UNDER TWO MOONS

by Frederik Pohl

I

The bolt of flame from the gun hissed by, twenty millimeters from his nose.

There was silence, and then the door opened behind him. Light footsteps approached, muffled by the fine, deadly dust on the floor. Gull craned to see the person approaching, but he was tied too tightly for that.

"You are most foolhardy, Meesta Gull," said the girl's soft voice. "I beg you, do not drop the fuse again or I must resort to more 'arsh methods." And from the corner of his eye Johan Gull saw her slim figure swiftly stoop to recover the half-meter length of rubbery plastic fusecord.

As she attempted to jam it into his mouth again he jerked his head aside and managed to ask, "Why are you doing this?"

"Why?" There was the soft hint of a laugh in her voice. "Ah, why indeed!" She caught his head in the crook of an arm and, surprisingly strong, held it still. He felt the stiff strand thrust between his teeth, tasted again the acrid chemical flavor. When she had done the

same thing before he had been able to spit the fuse out before she could ignite it. She did not chance his dropping it again; her flame-gun hissed, and the end of the fuse began to sizzle with a tiny green spark.

"I think," she whispered, "that it is because I love you, Meesta Gull." And he felt something like a quick touch of lips, a scent of perfume that carried even above the pyro-technic reek of the sputtering fuse; and then the door closed softly and he was alone in the room that was about to become an enormous bomb.

The green halo hissed the length of the dangling fuse toward his lips. Johan Gull, estimating seconds by the beat of his pulse where his wrists were tied to the wall, timed its course at perhaps two millimeters a second. Say four minutes before it reached his lips.

He sighed. It was a nuisance to think of his career ending like this—a daring foray into enemy territory to break up a smuggling operation of the Black Hats . . . complete success, the ring destroyed, the dozen men in charge of it dead . . . and then to allow himself to be tricked by the one person who survived, a slip of a girl. If he had only not answered her cry for help!

But he had. And he had found himself trussed up in a karate grip, then tied to the wall. And now—he had four minutes of life, or actually a bit less, unless he thought of something rather quickly.

He could, of course, drop the fuse at any time before the spark touched his flesh and his instinctive reaction made him drop it. But the girl had said, and he had no reason to think that she lied, that the powdery dust she had spread about the floor was gunpowder. In the unconfined space of the room it would perhaps not explode; it might only flare up like the igniting of a gas jet; but it would kill Johan Gull nonetheless. Could he scrape

a spot clean with his feet and drop the burning fuse there?

Experimentally he shifted position and tried. It was slow work. The floor was rough-cast cement and the tiny particles of explosive powder adhered like lint on wool. By arduous scraping with the side of his shoe Gull managed to get a six-inch square mostly free of the stuff. But it was not good enough, he saw. A pale powdery haze clung to the crevices. It was not much, but it was too much; it would take very little to flash and carry the spark of the fuse to the main mass; and two minutes were irretrievably gone.

Could he sneeze it out? It was at least worth a try, he thought; but annoyingly his nose would not itch, there was no trace of nasal drip, all he managed to do was snort at the tiny green light and make it flare brighter for a moment. He redoubled his efforts to slip his wrists out of their bonds. The thing could be done, he discovered with tempered pleasure. The girl had tied him well; but she was only a girl and not strong enough, or cruel enough, to cut deeply into his wrists. The cord stretched slowly and minutely; he would be able to work himself free.

But not in four minutes. Still more certainly not in the minute or less that was all he had left. Already he could feel the heat of the glowing end of the fuse on his chin. He was forced to lean forward for fear of igniting his goatee, but soon it would be too close for that to help.

There really was only one thing to do, thought Johan Gull regretfully.

He nibbled the short remaining length of fuse up to his lips and, wincing from the pain but denying it control of his actions, chewed out the spark.

A quarter of an hour later he was free of his bonds and through the door.

The girl was long gone, of course. Spirited little devil. Gull wished her well; he bore her no animus for taking one round of The Game, wished only that he had been able to see her more clearly, for her voice was sweet. Perhaps they would meet again.

Rubbing his wrists, Gull looked about the dingy shed in which he had been held captive. He knew this part of Marsport less well than almost any of the rest of the red planet, but recognized this rundown corridor as a slum. An uncollected trash basket kicked over on its side spewed refuse across the steel decking. On the black wall that had housed him some despairing wretch had scrawled, *We Are Property!* The air pressure was low, but it reeked of dirt, drugs and vice.

Gull shrugged, lighted a cigarette, turned his back on the room that had so nearly been his death trap and strode toward the sign marked *Subway.* He would be late, and .5 was a stickler for promptness. But he paused to glance back again, and thought of the girl who had trapped him. He had liked her voice. She had had a charming fragrance. It had been cool of her to have ignited the fuse while she was still in the room; he might have dropped it and then and there blown both of them halfway to Deimos. And she had said that she loved him.

II

The entrance to Security lay through a barber shop. Gull hung his coat on a rack and sat back in the chair, musing about the adventure he had just had and wondering about the next to come. In the corridor outside a chanting mob of UFOlogists demanded equal rights for

spacemen; Gull had nearly been caught in the marching front of their demonstration as he entered the shop.

He submitted to being lathered, shaved, talced and brushed, but the jacket he was helped into was not his own. His hand in the pocket closed over the familiar shape of the pencil-key. He let himself out the back way of the barber shop and opened the private door to .5's office.

"Sorry I'm late, sir," he apologized to the ancient, leathery figure with the hooded eyes behind the desk.

The Old Man's secretary, McIntyre, looked up from his eternal notebook. From the hooks and slants in that little leather-bound pad messages flew to every corner of the Solar System, alerting a battalion of Marines on Callisto, driving a Black Hat front into bankruptcy in Stuttgart, thrusting pawns against a raid on Darkside Mercury, throwing an agent to his death here on Mars. To McIntyre it was all the same. He was a dark young man who had never been known to show emotion. He said calmly, ".5 is a stickler for promptness, Gull."

Gull said, "I ran into difficulties. Something didn't want me to get here today, I'm afraid."

Was it his imagination, or did .5's imperturbable face show the vestige of a frown? McIntyre put down his pencil and regarded Gull thoughtfully. "I think," he said, "that you'd better tell .5 just what you mean by that."

"Oh, just that I had difficulties, sir." Quickly Gull sketched the events of the day. "Afraid I allowed myself to be decoyed. Shouldn't have, of course. But next thing you know there was a flame-pencil in my ribs, I was tied up and a lighted fuse between my teeth. Quite unpleasant, as the floor was covered with gunpowder. I would have been here sooner, but I didn't quite trust myself to spit the fuse clear of the gunpowder."

Eyebrows raised, McIntyre glanced at .5, as if to find

a sign on that stoic countenance. Then he rose deliberately, walked to a file, pulled out a sheaf of papers in a folder marked, *Gull, Johan, Personnel Records of.* He glanced through them thoughtfully.

"I see," he said at least. "Well, that's neither here nor there." He replaced the folder and sat beside Gull. "Johan," he said earnestly, ".5 wants me to caution you that your next assignment may mean unusual danger."

"Really, sir? Oh, delightful!"

"More than you think, perhaps," said McIntyre darkly. "It isn't merely our colleagues in the Black Hats this time. It's mob hysteria, at least. Perhaps something far more sinister. Something's up in Syrtis Major."

After fourteen years as an agent and innumerable hearings of those words, or of words very much like them, still a thrill tingled up the spine of Johan Gull. *Something's up in Syrtis Major*—or Lacus Solis. Or the Southern Ice Cap. And he would be off again, off in the gratification of that headiest of addictions, the pitting of one's wits and fine-trained body against the best the other side could come up with.

And they were resourceful devils, he thought, with the journeyman's unselfish admiration for a skilled worker at his own trade. Time and again it had taken all he possessed to win through against their strength and tricks. And if .5 felt it necessary to caution him that this coming exploit would be trickier than usual, it would indeed be something to remember.

"Smashing," he cried. "Would you care to brief me on it?"

But McIntyre was shaking his head.

"If you'd managed to get here on schedule—" he said; and then, "As it is, .5 has some rather urgent callers due in, let me see, mark! Forty seconds."

"I see," said Johan Gull.

"However," McIntyre went on, "research has the whole picture for you. You'll draw whatever supplies are necessary in Supply. Then Travel & Transport can arrange for your travel and transport. Good-by, Gull."

"Right, sir," said Gull, memorizing his instructions. His lips moved for a second and he nodded. "Got it. So long, McIntyre. Good-by, sir." He did not wait for an answer. It was well known that .5 disliked wasting breath on trivia, above all on the conventional exchange of greetings and farewells and unmeant inquiries as to the unimportant aspects of one's health that passed for "politeness."

In the office these perfunctory pleasances were skipped. Gull let himself out, his heart pounding in spite of himself, and started toward the Research office and a new job.

It was rather a nuisance, thought Gull as he lay sprawled in the barber's chair, to go again through the process of being lathered, shaved, talced and brushed. But it did have advantages. One advantage was that it gave one a moment to oneself now and then.

Johan Gull was a healthy young animal. He had an educated interest in food, drink and the attractions of women; a moment for reverie taken perforce, like this, was a luxury . . . the sort of luxury his active body was inclined to deny him when it had a choice. He dreamed away the moments, hardly hearing the barber-robot's taped drone—"How you think the Yanks gonna do? Say, you see this new *ragazz'* on the TV last nigh? Hoo!" —while his mind roamed the ochre wastes of Syrtis Major. He thought contentedly that he was ready for the assignment.

The jacket he was helped to put on bore on its cuff a

quite unduplicable pattern of metal-linked lines and dots. Gull climbed the winding stairs down to the basement of the barber shop, held the sleeve to a scanning device and was admitted to the Research center.

Lights, sounds and activity smote his senses. He blinked, pausing on the threshold of the room as the great steel door swung soundlessly closed behind him.

As it never failed to do, the busy hum of Research thrilled him with a sense of the vast massive scope of Security's incredibly complex operations. The chamber was more than thirty meters across. It was in the form of an amphitheater, with circles of desks descending toward the great central dais. There on a pivot, its axis inclined an exact 24°48′ from the vertical, the great globe of Mars majestically turned, its cities and trafficways and canals etched out in colors that were softly glowing or startlingly bright. Here a rhythmic green flash pinpointed one of Security's agents on active duty. There a crimson warning signal winked the presence of a known enemy operative. Patches of blue and orange indicated areas of military buildup or of temporary calm; white flashes showed Black Hat strongpoints under surveillance; .5's own bases were gold.

Any Black Hat field man would gladly have paid his life, and a bit more, for five minutes inside the Research chamber. It was the most secret installation in all Security's vast net. In it, any of the three hundred trained technicians seated at their rows of desks on each step of the circle could look up and, in a moment, identify a trouble signal, record a "mission accomplished," demand and get a dossier on any adult Martian citizen or guest, or put into operation any of .5's magnificently daring ventures. And what was most impressive about it all, thought Gull, was that this infinitely detailed accumulation of expertise was duplicated in

full in one other place—in the fecund convolutions of .5's busy brain.

Gull observed that the appropriate face of Mars was toward him now. He quickly sought the lines of the canals, followed them to Syrtis Major, paused and frowned.

The whole mass of the area was glowing with a pale lavender radiance.

Gull stood puzzled and faintly worried, until one of the girls at the circling desks rose and beckoned him. As he approached she sat down again and waved him to a chair. "Good afternoon, Mr. Gull," she said. "One moment until I get your account records."

Gull grinned, more amused than otherwise. "Oh, come off it, Gloria," he said easily. "I know I was a stinker last night. But let's not hold grudges."

She said stiffly, "Thank you for waiting, Mr. Gull. I have your records now."

Gull's smile did not fade; he had observed the faint softening of the corners of her mouth. "Then let's get to it," he said genially.

Her fingers had been busy on the console. A faxed sheet emerged from a slit on the lip of her desk and she read it carefully, nodding.

"Ah, yes. I thought so," said the girl. "It's that flying saucer affair in Syrtis Major."

Gull's smile vanished. He smote his brow. "Flying saucers! Of course." Comprehension overspread his face and he nodded. "Saw the lavender on the globe, of course, but I must admit that for the moment I forgot my color-coding. Couldn't remember that it meant flying saucers."

The girl was looking at him ruefully. "Oh, dear," she sighed. "Johan, you've just earned yourself a one-hour

refresher. You know .5's a stickler for keeping color-coding in your head."

Gull groaned, but she was adamant. "No use fighting it. It'll do you good, dear. Now about this flying saucer thing."

She glanced over the faxed sheet to refresh her memory, then spoke. "About two weeks ago," she said, "a couple of old mica prospectors reeled in off the desert with a story about having been captured by strange, godlike creatures who landed near their camp in a flying saucer. There's a transcript of their stories on this tape"—she took a spool from the drawer of her desk and handed it to Gull—"but essentially what it comes to is that they said these creatures are so far superior to humans that they consider us to be domesticated animals at best."

"Have the same feeling myself from time to time," said Gull, pocketing the spool.

"I know *that*, dear. Anyway, nobody paid much attention. Not even when the prospectors swore they'd been given the power of walking through fire without being burned, putting themselves into catalepsy, even levitating themselves. However, then they began doing it in front of witnesses." She took another spool of tape from her desk, then two more.

"This one's synoptic eye-witness accounts. This one's a report from Engineering on possible ways that these phenomena may have been faked. And this other one's a rebuttal from Unexplained Data, covering similar unexplained phenomena of the past forty-odd years."

"Keep an even balance, don't we?" grinned Gull, pocketing the spools.

"For God's sake, Johan, don't get them mixed up. Well, anyway. About half of Syrtis Major decided the prospectors were fakes and tried to lynch them. The

other half decided they were saints, and began to worship them. There's a whole revivalist religion now. They think that the saucer people own us—"

"Oh, yes," said Gull. "I know about that part." Indeed, it was hard not to have seen some of their riotous, chanting mass meetings, to dodge their interminable parades or to have failed to observe the slogans they had painted all over Marsport Dome.

"Then you won't need these other tapes." Gloria sat back, frowning over her checklist. "Well, that's about it, th—"

A bright golden light flashed on the girl's desk.

In the middle of a word she stopped herself, picked up the scarlet hushphone marked *Direct* and listened. She nodded. "Right, sir," she said, replaced the phone, made a quick notation on the fax sheet before her and returned to Gull.

"—en," she finished. "Any questions?"

"I think not."

"Then here are your operating instructions, submarine reservations, identification papers and disguise kit." She handed him another reel of tape, a ticket envelope, a punch-coded card with a rather good likeness of an idealized Johan Gull on it and a bottle of hair color.

Gull accepted them and stowed them away. But he paused at the girl's desk, looking at her thoughtfully. "Say. Would you like me to take you home tonight?"

"Good heavens, no. I haven't forgiven you that much." She made two check marks on the fax sheet. "Anyway, you won't have time."

"Why do you say that? My submarine doesn't leave for four hours—"

She smiled. "That call was from .5's office."

Gull said gloomily. "Cripes. I suppose that means extra lines."

"Absolutely essential you complete two one-hour refresher courses before leaving," the girl quoted. "McIntyre was quite emphatic. Said to remind you that .5 was a stickler for maintaining high levels of training; half-trained agents jeopardize missions." Gull sighed but surrendered. No doubt .5 was right. "What's the score?" he asked.

"One hour in color-code recognition, but don't think I reported you. Probably .5's office was monitoring us. The other—let me see—oh, yes. Basic fuse-spitting, refresher course. Good luck, Johan. Drop me a card from Syrtis Major."

Gull kissed her lightly and left. He paused in the entranceway, studying his tickets and operating orders. He was faintly puzzled.

That in itself was all right. He remembered and liked the feeling. It was a good sign; it was the operations where one couldn't quite see the drift at first that often turned out to be the most exciting and rewarding. Yet he wished he knew how this mission was going to be.

He turned his back on the flickering, darting lights that came from the great turning Martian globe and began to trudge up the stairs. All right, so Syrtis Major had got the wind up. Mass hysteria, surely. In itself, that sort of thing was hardly worth Security's while to bother with. There was no sign of the opposition's fine Machiavellian hand in it, less reason to belive that there would be real danger.

Yet McIntyre had warned of "unusual danger."

Surely he was wrong. Unless . . .

Unless, thought Johan Gull with a touch of wonder, as he sat back in the barber's chair and felt the warm lather gliding along his cheek, as the shoeshine robot waited to pull the lever that would drop him into the

chute to Plans & Training . . . unless there really *were* people from flying saucers on Mars.

III

Smells of fungi, smells of the sea. The tang of hot-running metal machinery and the reek of stale sewage. Johan Gull expanded his chest and sucked in the thousand fragrances of the Martian waterfront as he shouted: "Boy! My bags. To my cabin, chop-chop!"

He followed the lascar-robot at a slow self-satisfied pace, dropping ashes from his panatella, examining the fittings of the submarine with the knowing eye of the old Martian hand. He did indeed feel well pleased with himself.

In the role Costumery had set up for him, that of a well-to-do water merchant from the North Polar Ice Cap, he had arrived at the docks in a custom Caddy. He cast largesse to the winds, ordered up a fine brandy to his cabin and immediately plunged into a fresh-water bath. When you were playing a part, it was as well to play a wealthy one, he thought contentedly; and when he had luxuriated in his bath for fifteen minutes and felt the throb of the hydrojets announce the ship's getting under weigh, he emerged to dress and play his tapes with a light heart.

To all intents and purposes, Gull must have seemed the very archetype of a rich water vendor of substantial, but not yet debilitating, age. He sat at ease, listening to the tapes through a nearly invisible earplug and doing his nails. He did not touch the eye patch which gave his face distinction, nor did he glance toward the framed portrait of Abdel Gamal Nasser behind which, he rather thought, a hidden camera-eye was watching

his every move. Let them damned well look. They could find nothing.

He sat up, stretched, yawned, lighted an expensive Pittsburgh stogie, blew one perfect smoke ring and resumed his task.

The *T Coronae Borealis* was a fine old ship of the Finucane-American line. As a matter of fact Johan Gull had voyaged in her more than a time or two before, and he looked forward with considerable pleasure to his dinner that night at the captain's table, to a spot of gambling in the card room, perhaps—who knew?—to a heady tête-à-tête with one of the lovely ladies he had observed as he boarded. The voyage to Heliopolis was sixteen hours by submarine, or just time enough for one's glands to catch up with the fact that one had changed one's mise-en-scène. Ballistic rockets, of course, would do it in fifty minutes. In Johan Gull's opinion, ballistic travel was for barbs. And he was grateful that Mars's atmosphere would not support that hideous compromise between grace and speed, the jet plane. No, thought Gull complacently. Of all the modes of transport he had sampled on six worlds and a hundred satellites, submarining through the Martian canals was the only one fit for a man of taste.

He snapped off the last of the tapes and considered his position. He heard with one ear the distant, feminine song of *T Coronae*'s nuclear hydrojets. Reassuring. With every minute that passed they were two-fifths of a mile closer to the junction of four canals where Heliopolis, the Saigon of Syrtis Major, sat wickedly upon its web of waters and waited for its prey.

Gull wondered briefly what he would find there. And as he wondered, he smiled.

The knock on the door was firm without being per-

emptory. "Another brandy, sir?" called a voice from without.

"No, thank you, steward," said Gull. No Martian water vendor would arrive at dinner half slopped over. Neither would Gull—if not because of the demands of his role, then because of the requirements of good manners to the handiwork of *T Coronae's* master chef. Anyway, he observed by his wrist chronometer that it was time to think things over.

He reviewed what he had heard on the tapes.

Those two prospectors, he thought. Damned confusing thing.

Their names, he recalled, were Harry Rosencranz and Clarence T. Reik. He had checked their dossiers back to pre-emigration days. There had been nothing of interest there: Rosencranz an ex-unemployed plumber from Fort Leavenworth, Kansas; Reik a cashiered instructor in guerrilla tactics from the nearby Command & General Staff School. Like so many of Earth's castoffs, they had scraped together money to cover passage to Mars, and enough over to outfit one expedition. They had managed to subsist ever since on what scrubby topazes they could scratch out of the sands of the Great Northern Desert. With, thought Gull, no doubt a spot of smuggling to make ends meet. Duty-free Martian souvenirs into the city, and chicle for the natives out. So much for Harry Rosencranz and Clarence T. Reik, thought Gull, blowing gently on the second coat of polish and commencing to buff his nails to a soft gleam. But it was not who the prospectors were that mattered. It was what they had had to say . . . and above all, what they had done.

Gull paused and frowned.

There was something he could not recognize in the atmosphere. A soft hint of fragrance—tantalizing—it strove

to recall something to him, but he could not be sure what. A place? But what place? A girl?

He shook his head. There could be no girl here. He put the thought from his mind and returned to the two prospectors and their strange story.

Their testimony far outran the parameters of normal credibility. Gull could repeat the important parts of what they had said almost verbatim. Reik had been the more loquacious of the two—

Well, Harry was like cooking up our mulligan outside the tent when I thought I heard him yell something. I stuck—

Q. One minute, Mr. Reik. You couldn't hear what he said clearly?

A. Well, not what you'd call clearly. You see I had the TV sound up pretty loud. Can't hear much when you got the TV sound up pretty loud.

Q. Go on.

A. Well, I just reached out and turned off the set and stuck my neck out the flap. Geez! There it was. Big as life and twice as scary. It was a flying saucer, all right. It glowed with like a sort of pearly light that made you feel—I dunno how to say it, exactly—like, peaceful.

Q. Peaceful?

A. Not only that. *Good.* It made me sorry I was such a rat.

Q. Go on.

A. Well, anyway, after a minute a door opened with like a kind of a musical note. F sharp, I'd say. Harry, he thought it was F natural. Well, we got to fighting over that, and then we looked up and there were these three, uh, creatures. Extraterrestrials, like. They told us they had long watched the bickerings and like that

of Earthmen and they had come to bring us wisdom and peace. They had this sealed book that would make us one with the Higher Creation. So we took a couple—

Q. They gave you each one?

A. Oh, no. I mean, they didn't give them to us. They *sold* them to us. Twenty-five bucks apiece. We paid them in topazes.

Q. You each had to have a book?

A. Well, they only work for one person, see? I mean, if it's anybody else's book you can't see it. You can't even tell it's there.

Gull frowned. It would be sticky trying to learn much about the book if one couldn't see it. Still, even if the book itself were invisible, its effects were tangible indeed—or so said the account on the tapes. Reik had described his actions on entering Heliopolis:

Harry he lemme his switchblade. I stuck it right through my cheeks, here. I didn't bleed a drop, and then I kind of levitated myself, and after a while I did the Indian Rope Trick, except since I just had my good necktie for a rope I couldn't get far enough up to disappear. You have to get like seventy-five per cent of your body height up before you disappear.

Q. Could you disappear if you had a long enough rope?

A. Hell, yes. Only I won't. You get to a higher cycle of psychic Oneness like me and you don't kid around with that stuff any more.

Q. Did you do anything else?

A. Well, not till after dinner. Then I put myself in a cataleptic trance and went to sleep. I didn't do that any more after that, though. Catalepsy doesn't really

rest you. I was beat all the next day, but I figured, what the hell. I was still only on page seven.

Gull sighed, relit his stogie and contemplated the shimmering perfection of his nails.

And at that moment his door-chime sounded. Through the open switch of the announcer-phone came a sound of terrified sobbing and the throaty, somehow familiar voice of a frightened girl:

"Please! Open the door quickly, I 'ave to see you. I beg you to 'urry, Meesta Gull!"

Gull froze. He realized at once that something was amiss, for the name on his travel documents was not Gull. Steadily he considered the implications of that fact.

Someone knew his real identity.

Gull called, "One moment." He was stalling for time, while his mind raced to cope with the problems that deduction entailed. If his identity were known, then security had been breached. If security were breached, then his mission was compromised. If his mission were compromised—

Gull grinned tightly, careless of the possible camera-eye that would even now be recording his every move. If his mission were compromised the only intelligent, safe, approved procedure would be to return to Marsport and give it up. And that, of course, was what Johan Gull would never do.

Carefully, quickly, he slid into his socks and slippers, blew on his nails to make sure they were dry and threw open the door, one hand close to the quick-draw pocket in his lounging robe where his gun awaited his need.

"Thank God," whispered the girl at the doorway. She was lovely. A slim young blonde. Blue eyes, in which a

hint of recent tears stained the eyshadow at the corners.

Courteously Gull bowed. "Come in," he said, closing the door behind her. "Sit down, if you will. Would you care for coffee? A drop of brandy? An ice cream?"

She shook her head and cried: "Meesta Gull, your life is in 'ideous danger!"

Gull stroked his goatee, his smile friendly and unconcerned. "Oh, come off it, my dear," he said. "You expect me to believe *that?*" And yet, he mused, she was really beautiful, no more than twenty-seven, no taller than five feet three.

And the tiny ridge at the hemline of her bodice showed that she carried a flame-pencil.

"You must believe me! I 'ave taken a frightful chance to come 'ere!"

"Oh, yes, no doubt," he shrugged, gazing at her narrowly. It was her beauty that had struck him at first, but there were more urgent considerations about this girl than her charms. For one thing, what was that she carried? A huge bag, perhaps; it almost seemed large enough to be a suitcase. For another—

Gull's brows came together. There was something about her that touched a chord in his memory. Somewhere . sometime he had seen that girl before. "Why do you come here with this fantastic story?" he demanded.

The girl began to weep. Great soft tears streamed down her face like summer raindrops on a pane. But she made no sound and her eyes were steady on his. "Meesta Gull," she said simply, "I come 'ere to save your life because I must. I love you."

"Hah!"

"But it is true," she insisted. "I love you more than life itself, Meesta Gull. More than my soul or my 'opes of 'Eaven. More even than my children—Kim, who is

six; Marie Celeste, four; or little Patty." She drew out a photograph and handed it to him. It showed her in a plain knitted suit, with three children grouped around a Christmas tree.

Gull softened slightly. "Nice-looking kids," he commented, returning the picture.

"Thank you."

"No, really. I mean it."

"You're being kind."

Gull started to reply, then stopped himself.

For he was falling into the oldest trap in the business. He was allowing his gentler emotions to interfere with the needs of the assignment. In this business there was no room for sentiment, Gull thought wryly. Better men than he had been taken in by the soft passions and had paid for it, in death, in torture, in dismemberment—worst of all, in the failure of a mission. "Hell with all that stuff," he said gruffly. "I still can't accept your story."

"You must! The Black 'Ats 'ave a plan to kill you!"

He shook his head. "I can't take a stranger's word for it."

The tears had stopped. She gazed at him for a long opaque moment. Then she smiled tantalizingly.

"A stranger, Meesta Gull?"

"That's what I said."

"I see." She nodded gravely. "We 'ave never met, eh? And therefore I could not possibly know something about you—oh, something that perhaps is very private."

"What are you talking about? Get to the point!"

"Something," she continued, her eyes veiled but dancing with amusement, "that perhaps you 'ave told no one else. A—shall we say—a sore lip, Meesta Gull? Received, perhaps, in an alley in the Syrian quarter of Marsport?"

Gull was startled. "Really! Now, look. I—confound it, how could you possibly know about that? I've mentioned it to no one!"

She inclined her head, a tender and mocking gesture.

"But it's true! And there was no one there at the time! Not a single living soul but myself and the woman who trapped me!"

The girl pursed her lips but did not speak. Her eyes spoke for her. They were impudent, laughing at him.

"Well, then!" he shouted. He was furious at himself. There had to be some rational explanation! Why had he let her catch him off-balance like this? It was a trick, of course. It could be no more than that. There were a thousand possible explanations of how she could have found out about it— "Well, then! How did you know?"

"Meesta Gull," she whispered soberly, "please trust me. I cannot tell you now. In precisely seven minutes"—she glanced at her watch—"an attempt will be made on your life."

"Rot!"

Her eyes flamed with sudden anger. "Idiot!" she blazed. "Oh, 'ow I 'ate your harrogance!"

Gull shrugged with dignity.

"Very well! Die, then, if you wish it. The Black 'Ats will kill you, but I will not die with you." And she began to take off her clothes.

Johan Gull stared. Then soberly, calmly he picked up his stogie, relit it and observed, "Your behavior is most inexplicable, my dear."

"Hah!" The girl stepped out of her dress, her lovely face bitter with anger and fear. A delicate scent of chypre improved the air.

"These tactics will get you nowhere," said Gull.

"Pah!" She touched the catch on her carrying case.

It fell open and a bright rubbery coverall fell out, with mask and stubby, bright tanks attached.

"Good heavens!" cried Gull, startled. "Is that a warmsuit? SCUBA gear?"

But the girl said only, "You 'ave four minutes left."

"You're carrying this rather far, you know. Even if there are Black Hats aboard, we can't leave the submarine underwater."

"Three minutes," said the girl camly, wriggling into her suit. But she was wrong.

The submarine seemed to run into a brick wall in the water.

They were thrown against the forward wall, a Laocoön of lovely bare limbs and rubbery warmsuit and Gull entwined in the middle. A huge dull sound blossomed around them. Gull fought himself free.

The girl sat up, her face a mask of terror. "Oh, damn the damn thing," she cried, shaking her wrist, staring at her watch. "I must've forgot to set it. Too late, Meesta Gull! We 'ave been torpedoed!"

IV

The warbling *wheep-wheep* of alarm signals blended with a confused shouting from the steerage holds below. The cabin lighting flickered, went out, tried once more, failed and was replaced by the purplish argon glow of the standby system. A racking, shuddering crash announced the destruction of the nuclear reactor that fed the hydrojets; somewhere, water was pouring in.

" 'Urry, Meesta Gull!" cried the girl.

"Of course," said Gull, courteously assisting her with the warmsuit. He patted her shoulder. "Not to worry,

my dear. I owe you an apology, I expect. At a more propitious time—"

"Meesta Gull! The bulkheads 'ave been sabotaged!"

Gull smiled confidently and turned to his escape procedures. Now that it was a matter of instant action he was all right. His momentary uncertainty was behind him.

Coolly he reached into his pocket, unsnapped the little packet of microthin Standing Orders and scanned their titles. "Let me see, now. Checklist for air evacuation—no. Checklist for enemy attack, artillery. Checklist for enemy attack, ICBM. Checklist for—"

"Meesta Gull," she cried, with real fear in her voice. " 'Ave you forgotten that these waters are the 'abitat of the Martian piranha? You must 'urry!"

"Well, what the devil do you think I'm doing? Now be still; I have it here." And crossly Gull began to check off the items under *Submarine torpedoing, Martian canals*: Secret papers, maps, halazone tablets, passports, poison capsule, toothbrush, American Express card . . with metronome precision he stowed them away and instantly donned his own SCUBA gear. "That's the lot," he announced, glancing distastefully at the dirty froth of water that was seeping under the door. "We might as well be off, then." He lowered the SCUBA mask over his face—and raised it again at once, to fish out a packet of Kleenex in its waterproof packet and add it to his stores. "Sorry. Always get a sniffly nose when I'm torpedoed," he apologized, and flung open the door to the passageway.

A three-foot wall of water broke into the cabin, bearing with it a short-circuited purser-robot that hummed and crackled and twitched helplessly in a shower of golden sparks. "Outside, quick!" cried Gull, and led the way through the roiled, tumbling waters.

The brave old *T Coronae Borealis* had taken a mortal wound. Half wading, half swimming, they fought strongly against the fierce drive of inwelling waters toward an escape hatch. In the dim purple gleam of the standby circuits they could see little. But they could hear much—shouts, distant screams, the horrid sounds of a great ship breaking up.

There was nothing they could do. They were lucky to be able to escape themselves.

And then it was nothing; a few strong strokes upward, a minute of clawing through the gelid, fungal mass that prevented the canals' evaporation and had concealed their water from earthly telescopes for a hundred years—and they were safe. Armed and armored in their SCUBA gear, they had no trouble with the piranhas.

Gull and the girl dragged themselves out on the bank of the sludgy canal and stared back at the waters, gasping for breath. There were ominous silent ripples and whorls. They watched for long minutes. But no other head appeared to break the surface.

Gull's face was set in a mask of anger. "Poor devils," he allowed himself, no more.

But in his heart he was resolved. A hundred men, women and robots had perished in the torpedoing of the *T Coronae*. Someone would pay for it.

Across the burning ochre sands they marched . . . then trudged . then stumbled. The pitiless sun poured down on them.

"Meesta Gull," sobbed the girl. "It is 'ot."

"Courage," he said absently, concentrating on making one foot move, and then the other. They had many miles to go. Gull's maps had indicated a nearly direct route from the canal along the Sinus Sabaeus where the sub-

marine was slowly beginning to rust, straight across the great hot sweep of Syrtis Major to Heliopolis. A direct route. But it was not an easy one.

Step, and step. Gull thought sardonically of the two prospectors who had come out of this desert to start all the trouble. When they entered Heliopolis it had been on a magic carpet that slid through Mars's thin air like a knife. Nice to have one now, he thought—though exhaustive tests had shown the carpet itself to be a discontinued Sears, Roebuck model from the looms of Grand Rapids. But somehow they had made it work—

He sighed and called a halt. The girl fell exhausted to the sands.

"Meesta Gull," she whispered, "I cannot go much farther."

"You must," he said simply. He fell to studying his maps, checking the line of sight to the distant hillocks that passed, on Mars, for mountains. "Right on," he murmured with satisfaction. "See here. Seven more miles west and we're in the Split Cliffs. Then bear left, and—"

"You are not 'uman! I must 'ave rest—water!"

Gull only shrugged. "Can't be helped, my dear. But at least the sun will be behind us, now. We can do it."

"No, no!"

"Yes," said Gull sharply. "Good God, woman! Do you want to be caught out here after dark?" He sneezed. "Excuse me," he said, fumbling a Kleenex out of the packet and wiping his nose.

"Five minutes," she begged.

Johan Gull looked at her thoughtfully, dabbing at his nose. He had not solved the mystery she presented. There was every reason to be on guard. Yet she had truly warned him of the torpedoing of the submarine, and surely she could be no threat to him out here, as piteously weakened as she was. He replaced his breath-

ing guard and dropped the Kleenex to the ground. A moment later the empty pack followed. It had been the last.

But Gull merely scuffed sand over it with his foot and said nothing; no sense adding to her worries. He said chivalrously, "Oh, all right. And by the way, what's your name?"

She summoned up enough reserves of strength to smile coquettishly. "Alessandra," she murmured.

Gull grinned and nudged her with his elbow. "Under the circumstances," he chuckled, "I think I'll call you Sandy, eh?"

"Don't jest, Meesta Gull! Even if we survive this trip, you 'ave still the Black 'Ats to face in 'Eliopolis."

"I've faced them before, my dear. Not to worry."

" 'Ave you seen what they can do now? With their creatures from outer space?"

"Well, no. But I'll think of something."

She looked at him for a long and thoughtful minute. Then she said, "I know you will, Meesta Gull. It is love that tells me so."

V

Step, and step. In Mars's easy grasp a man can lift much, jump high. But to slog through desert sands is little easier than on Earth; the sliding grains underfoot rob him of strength and clutch at his stride. They were near exhaustion, Gull knew with clarity; and for the past half mile the girl had been calling to him.

Gull closed his ears to her. He kept his eyes on his own lengthening shadow before him, even when he heard her sobbing. They had no strength to spare for conversation.

"Meesta Gull," she whispered brokenly. "Wait, please."

He kept on grimly, head down, feet moving like pendulums.

"Meesta Gull! But I must ask you something."

Over his shoulder he murmured, "No time for that, old girl. Keep walking."

"But I 'ave to know."

"Oh, for God's sake," he said, and waited for her to catch up. "What is it now?"

"Only this, Meesta Gull. If we are 'eading west, why is the sun behind us?"

"Really, Sandy! I swear you have no consideration at all!"

"I am most sorry, Meesta Gull. I only asked."

"You only asked," he repeated bitterly. "You only asked! And now you know what I have to do? I have to stop and take out the maps and waste all kinds of time just to satisfy your damned curiosity. Of course we're heading west!"

"I really am very sorry."

"And the reason the sun's behind us— Well, if you knew geometry— Look here. I'll show you on the map."

She fell to the ground again as he pored over the charts, frowning at the horizon, returning to his grid lines. At length his expression cleared.

"I thought so," he said triumphantly. "Perfectly simple, my dear. Up you get."

With rough tenderness he helped her to her feet and set off again, smiling. She did not speak at first, but presently she ventured: "Meesta Gull, we are 'eading toward the sun now. And these seem to be our own footprints we are retracing."

Gull patted her good-humoredly. "Don't worry, Sandy."

"But, Meesta Gull—"

"Will you for God's sake shut up?" Confounded women, thought Gull. How they did go on! And he might have said something harsh to the poor girl, except that that occurred which drove all thoughts of compass headings from both their minds.

There was a terrible thunder of many hooves.

Alessandra whimpered and clutched his arm. Gull stopped short, waiting; and over a rise in the ochre sands came a monstrous gray-green creature with six legs. It was huge as an elephant and its look was deadly; and it bore a rider, a huge, manlike, green-skinned creature with four arms, holding a murderous-looking lance.

The thoat, for such it was, skidded to a stop before them. Its monstrous rider dismounted with a single leap.

For an endless second the creature glared at them through narrowed, crimson eyes. Then it laughed with a sound of harsh and distant thunder.

"Ho!" it cried, tossing the lance away. "I won't need this for such as you! Prepare to defend yourself, Earthling—and know that you face the mightiest warrior of the dead sea bottoms, Tars Tarkas of Thark!"

The girl cried out in terror. Johan Gull gripped her shoulder, trying to will strength and courage into her.

It was damnably bad luck, he thought, that they should somehow, have taken the wrong turn. Clearly they had blundered into private property . and he had a rather good idea of just whose property they had blundered into.

He stepped forward and said, "Wait! I believe I can settle this to everybody's satisfaction. It's true that we don't have tickets, Tars Tarkas, but you see we were torpedoed in the Sinus Sabaeus and had no opportunity to pass the usual admission gate."

"Wretched Earthling!" roared the monster. "If I issue

you tickets there is a ten per cent surcharge; I don't make Barsoomland policy, I only work here. What say you to that?"

"Done!" cried Gull, and amended it swiftly. "Provided you'll accept my American Express card—otherwise, you see, I have the devil of a time with the old expense account."

The creature bared yellow fangs in a great, silent laugh. But it interposed no objection, and the card was quickly validated by comparison with the Barsoomian's built-in magnetic file. Tars Tarkas nodded his enormous head, swiftly wrote them out two lavender slips and roared: "Here you are, sir. If you wish to exchange them for regular family-plan tickets at the gate there will be a small refund . . . I am assuming the lady is your wife," he twinkled. "And now, welcome to Barsoomland. Be sure to visit the Giant Sky Ride from the Twin Towers of Helium, in the base of which are several excellent restaurants where delicious sandwiches and beverages may be obtained at reasonable prices. Farewell!"

"I think not," said Gull at once. "Don't go. We need transportation."

"By the hour or contract price?" parried the Martian.

"Direct to Heliopolis. And no tricks," warned Gull. "I've taken this ride fifty times. I know what the meter should show."

Muttering to himself, the creature leaped up on his thoat and allowed them to clamber behind. And they were off.

The motion of the thoat was vaguely disconcerting to the sense of balance, like a well trained camel or a very clumsy horse. But it ate up the miles. And for a nominal

fee Tars Tarkas consented to supply them with food and drink.

Gull ate quickly, glanced at the girl to make sure she was all right—which she was, though a trifle green and apparently not greatly interested in food—and set to work to question the Thark. "You've had some interesting goings-on," he yelled up toward the enormous head.

"It is even so, Earthling," tolled Tars Tarkas's great voice.

"Flying saucers and that sort of thing."

The bright red eyes regarded him. "Evil things!" roared the Thark somberly. "May Iss bear them away!"

"Oh, I certainly hope that too," agreed Gull. He was hanging on to the Barsoomian's back, his face at about the level of the creature's lower left-hand armpit, and carrying on a conversation presented difficulties. But he persevered. "Have you seen any of it yourself?" he asked. "Psionics or any of that? UFOs? Little green monsters?"

"Watch your mouth!" cried the Barsoomian, enraged.

"No, no. *Little* green monsters. Nothing personal."

The Thark glared at him with suspicion and hostility for a moment. Then the huge, reptilian face relaxed. The Thark muttered. "Not now. When we get to Heliopolis, go to the—"

The voice broke off. Tars Tarkas cocked a pointed ear, and stared about.

With a whirring, whining sound, something appeared over the dunes. The girl cried out and clutched at Gull, who had little comfort to give her. Whatever it was, it was not of this planet—or of any other that Johan Gull had ever seen. It had the shape of a flying saucer. It glittered in the blood-red, lowering sun, arrowing straight toward them. As it drew near they could see the markings on its stern:

U.F.O. Cumrovin 2nd
Giant Rock, Earth

"Blood of Issus!" shouted the Barsoomian. "It's one of *them!*"

Tars Tarkas bellowed animal hatred to the dark Martian sky and raised his lance. Fierce white fires leaped from its tip—struck the alien vessel, clung and dropped away. The craft was unharmed.

It soured mockingly, tantalizingly overhead for a moment, seeming to dare them to fire on it again. Then a single needle of ruby light darted out of its side, reached down and touched Tars Tarkas between his bright red eyes.

The Barsoomian seemed to explode.

The concussion flung them from the thoat. Dazed, stunned, aching in every bone, Johan Gull managed to drag himself to his feet and look around.

The alien spacecraft was gone. The girl lay stunned and half unconscious at his feet. Yards away Tars Tarkas was a giant mound of gray-green flesh and bright metal parts, writhing faintly.

Gull staggered over to the creature and cradled the ravaged head in his lap.

The scarlet eyes stared sightlessly into his. The ruin of a mouth opened.

"We . . . are property," whispered Tars Tarkas thickly, and died.

VI

Once, when Johan Gull was very young, the newest and least reliable of cogs in Security's great machine, he had

been assigned to Heliopolis to counter a Black Hat ploy. Or not quite that, he admitted; he had been sent to add a quite unimportant bit of information to the already huge store that the agent operating on the scene already had. He had envied that agent, had young Johan Gull. He had looked with jealous eyes about the bright, dizzying scenes of Heliopolis and dreamed of a time when he too might be a senior agent in charge, himself a major piece in The Game, squiring a lovely lady on an errand of great consequence, in the teeth of dreadful danger.

All the fun of it was in the anticipation, he thought as they rode into Heliopolis lock on their battered thoat, checked it at the Avis office and dismounted. If only Tars Tarkas had survived to tell what he knew!

But he had not; and Gull was uneasily aware that he knew no more now than when he left Marsport. Still, he thought, brightening, this was Heliopolis, the Saigon of Syrtis Major. He might get killed. He might not be able to protect this lovely and loving girl from mischance. He might even fail in his mission. But he was bound to have a hell of a time.

They found rooms at the Grand and parted to freshen up. Overhead the city's advertising display flashed on the thin, yellowish clouds of Mars, on, off—on, off:

HELIOPOLIS
The Wickedest City in the Worlds
Liquor * Gambling * Vice
The Family That Plays Together
Stays Together

And indeed, Gull saw, the pleasure-seekers who thronged the concourses and the lobby of the Grand had often enough brought the kiddies. He watched them

sentimentally as the bellthing trundled his luggage toward the elevators. It would be most pleasant to spend a holiday here, he thought, with someone you loved. With Alessandra, perhaps. Perhaps even with Kim, Marie Celeste and little Patty . . .

But he could not afford thoughts like that; and he quickly showered, shaved, put on a clean white suit and met the girl in the great gleaming cocktail lounge of the Grand.

" 'Ello, Meesta Gull," she said softly, her eyes dark and somehow laughing.

Gull regarded her thoughtfully. She was a sight worth regarding, for the girl in the cocktail lounge was nothing like the bedraggled, terrified creature in the ochre sands. Her green-blue eyes were smoky with mystery. Her leongsam, deeply slit, revealed the gleam of a bronzed rounded thigh. A whisper of some provocative scent caressed him; but it was not her charms that had him bemused; it was something else. His eyes narrowed. Somewhere, he thought. Some time . . .

She laughed. "You are thoughtful," she said. "Will you 'ave a drink with me?"

"The pleasure is all mine," he said gallantly.

"Unless you have other plans?" she inquired. There was no doubt about it; she was poking fun at him.

He rose to her mood. "It's the least I could do, my dear—seeing you saved my life."

"Ah! Life." She glanced wryly at him from the corner of her eye. "What is it, this 'life' I 'ave saved? Can one taste it? Can one carry it to bed?"

Gull grinned. "Perhaps not, but I'm rather attached to mine." He ordered drinks, watched carefully while they were made, then nodded and raised his glass. "Of course," he added, "I've saved your life too—I guess, let's see—oh, perhaps three times. From Tars Tarkas.

From dying by thirst. From the saucer people. So you actually owe me about three to one, lifesaving-wise."

"Three to two, deer Meesta Gull," the girl whispered over the rim of her glass.

"Two? Oh, I think not. Just the torpedoing, really, and as a matter of fact I'm not sure you should get full credit for that. You *were* a little tardy there."

She shook her head. "Yes, the torpedoing—and something else. 'Ave you forgotten? The old warehouse? The —incident—which caused your sore lip?"

Gull stared at her, then brought his glass down with a crash. "Got it!" he shouted. "I remember now! . Oh, damn it, sorry," he went on, shaking his head. "It was on the tip of my tongue, but I've lost it. Sorry."

He stared at her moodily and drained his glass. "No matter. I'll think of it. I promise you that."

The girl laughed softly, then sobered. "Meanwhile," she said, "we 'ave some more important business 'ere." And she nodded toward the great crystal pane that opened on the thronged boulevards of Heliopolis.

Gull followed the direction of her glance and saw at once what she meant. A demonstration was in progress. A hundred straggling, shouting marchers were carrying placards with as many harsh and doctrinaire slogans:

Let the Space People Save You!
We Are Property
Why Is the Air Force Covering
Up Sightings?

Gull said abruptly, "Let's take a look."

The girl rose without answering and together they walked out to the terrace. The shouts of the demon-

strators smote them like a fist. Gull could barely distinguish the cadenced words in the roar of sound: "*Make . Mars . . the tomb of skepticism,*" over and over in time to their march until it changed to "Welcome UFOs *now!* Welcome UFOs *now!*"

"They take it seriously," he murmured. Alessandra did not answer; he glanced at her, then followed the direction of her gaze. A man in stained coveralls, eyes fixed on them, was pushing his way in their direction through the crowd. He was tall, and not young. His face was lined with the ineradicable burn of a life spent on the Martian desert.

Gull stroked his goatee to hide a thrill of excitement that tingled through him. This could be it: The break he was looking for.

The man stopped just below them, looking up. "Hey, you!" he bawled. "You Gull?"

Gull shouted carefully, "That's my name, yes."

"Well, where the devil you been? We been waiting for you!" cried the man in irritable tones. He reached up, clutched at a carved projection on the face of the terrace, raised himself and swung to face the crowd. "Hey, everybody!" he shouted. "Meet the fella that thinks UFOs are phony! This way! You! Look here!"

Heads were beginning to turn. The ragged line of marchers slowed, Gull whispered to the girl, whose presence he could feel shivering beside him: "Careful! I don't know what he's going to do. If it looks like trouble —run!"

But he could not hear her answer, if she made one, for the man was turning back to him again. In the diminished sound of the street his raucous yell sounded clearly: "All right, Gull! You think our supranormal powers're all a lotta crud, see what you think of this!" And he made a snatching motion at what, as far as Gull

could see, was empty air; caught something, squeezed it in his fist; turned toward Gull and threw it.

There was nothing in the man's hand.

But that nothing spun toward Gull like a pinwheeling comet, huge and bright and deadly; it hummed and sang shrilly of hate and destruction; it rocketed up toward him like an onrushing engine of destruction. And something in it snapped his will. He stood frozen, impotent to move.

Vaguely he felt a stir of motion beside him. Hazily he knew that the girl was thrusting at him, shouting at him, hurling him aside. Too late! The hurtling doom came up and struck him—just a corner brushing against his head as he fell—but enough; worlds crashed; hell-bombs roared in his skull; he dropped, away and away, endlessly down into into . he could not see, could not guess what it was; but it was filled with terror and pain and doom.

But then he was awake again, and the girl was weeping over him; he could feel her teardrops splashing on his face.

Gull coughed, gasped, clutched at his pounding skull and pushed himself erect. "What— What—"

"Oh, thank 'Eaven! I was afraid 'Arry 'ad killed you!"

"Apparently not," he said dizzily; and then, "Harry who? How do you know who that fellow was?"

"What does it matter?" she cried. Bright tears hung unshed in her eyes.

"Well, it kind of matters to me," said Gull doubtfully, looking around. They were no longer on the terrace. Somehow she had lugged him back into the greater security of the cocktail lounge. A waiter was hanging over them, whirring in a worried key.

"Harry Rosencranz!" he cried suddenly. The girl

nodded. "Sure! And he knew I was coming. Well, that tears it. My cover's blown for sure." He glared at the waiter and said, "Don't just stand there. Bring us a drink." The thing went away, warbling unhappily to itself. It had not been programmed for this sort of thing.

Indeed Gull needed a drink. The reality of supranormal powers was a phenomenon of a totally different kind than the contemplation of them at a distance. The tapes about Reik and his partner had been interesting; the reality was terrifying.

He seized the glass as soon as offered and drained it; and then he turned to Alessandra. "You've got some explaining to do," he said.

The tears were very near the surface now.

She waited.

"How did you know it was Rosencranz?" he demanded. "And the torpedoing—you knew about that. And don't think I've forgotten that we've met before . . . somewhere . . . don't worry, I'll think of where it was."

She inclined her head, hiding her face.

"You're working for someone, aren't you?" Her silence was answer enough. "A nice girl like you! How'd you get into this?" He shook his head, mystified.

"Ah, Meesta Gull," she said brokenly, "it's the old, old story. My 'usband—dead. My little ones—'ungry. And what could I do? And now they 'ave me in their power."

"Who?"

"The Black 'Ats, Meesta Gull. Yes, it is true. I am in the employ of your enemy."

"But damn it, girl! I mean, you said you loved me!"

"I do! Truly! Oh, 'ow I do!"

"Now, wait a minute. You can't love *me* and work for *them*," objected Gull.

"I can too! I do!"

"Prove it."

She flared, " 'Appily! 'Ow?"

Gull signaled for another drink. He smiled at the girl quite fondly. "It's very simple," he said. "Just take me to your leader."

VII

It took a bit of doing, but the girl did it. She returned from a series of cryptic telephone conversations and looked at Gull with great, fearful eyes. "I 'ave arranged it," she said somberly. "You will be allowed in. But to get out again—"

Gull laughed and patted her hand. He was not worried.

Still, he admitted to himself a little later, things *could* get a bit difficult. Security precautions for the Black Hats were in no way less stringent than those of Gull's own headquarters in Marsport. He allowed himself to be seated in a reclining chair while a gnomelike old dentist drilled a totally unneeded filling into a previously healthy tooth; and when he rose, the exit through which he left the office brought him to a long, dark tunnel underground.

The girl was waiting there silently to conduct him to his destination. She placed a finger across her lips and led him away. "Wait a minute," Gull whispered fiercely, looking about. For there were interesting things here. Off the corridor were smaller chambers and secondary tunnels filled with all sorts of objects shadowy and objects small. Gull wanted very much to get a look at them. Those tiny disjointed doll-shapes! What were they? And the great gleaming disk section beyond?

But the girl was pleading, and Gull allowed himself to be led away.

She conducted him to a door. "Be careful," she whispered. And she was gone, and Gull was face to face with the chief of the Black Hats in Heliopolis.

He was a tall, saturnine man. He sat at a desk that reflected gold and green lights into his face, from signals that Gull could not see. "Oodgay eveningway," he said urbanely. "Ah, I see you are perplexed. Perhaps you do not speak Solex Mal."

"Afraid not. English, French, Cretan Linear B, Old Ganymedan's about the lot."

"No matter. I am familiar with your tongue as we speak it all the time in Clarion." He leaned forward suddenly. Gull stiffened; but it was only to hand him a calling card. It glittered with evil silver fires, and it read:

T. Perlman
Clarion

"Clarion's a planet? I never heard of it."

Perlman shrugged. Obviously what Gull had heard of did not matter. He said, "You are a troublemaker, Mr. Gull. We space people do not tolerate troublemakers for long."

"As to that," said Gull, stroking his goatee, "it seems to me you had a couple of shots at doing something about it. And I'm still here."

"Oh, no, Mr. Gull," said Perlman earnestly. "Those were only warnings. Their purpose was only to point out to you that it is not advisable to cause us any trouble. You have not as yet done so, of course. If you do—" He smiled.

"You don't scare me."

"No, Mr. Gull?"

"Well, I mean, not much anyway. I've been lots more scared than this."

"How interesting," Perlman said politely.

"And anyway, I have my job to do and I'm going to do it."

Perlman pursed his lips and whispered into a microphone on his desk. There was a stirring of draperies at the back of the room. It was shadowed there; Gull could see no details.

But he had a moment's impression of a face looking out at him, a great, sad, mindless long face with teeth like a horse and an air of infinite menace; and then it was gone. He cried, "You're up to some trick!"

Perlman smirked knowingly.

"It won't do you any good! You think you know so much."

"Ah, if only I did, Mr. Gull! There are forces in this universe which even we of Clarion have not yet understood. The straight-line mystery, to name one. The Father's plan."

Gull took a deep breath and carefully, inconspicuously, released it. He was doing no good here. And meanwhile there were matters just outside this room that urgently required investigation—and attention. He said steadily, "I'm going to go now, Mr. Perlman. If you try to stop me I'll shoot you."

Perlman looked at him with an expression that suspended judgment for a moment. Then it came to a conclusion and broke into a shout of laughter. "Ho!" he choked. "Hah! Oh, Mr. Gull, how delicious to think you will be allowed to leave. As we say in Solex Mal, otway usteray!"

Gull did not answer. He merely moved slightly, and into his hand leaped the concealed 3.15-picometer heat gun.

Perlman's expression changed from fire to ice.

"I'll leave you now," said Gull. "Next time you have a visitor, search his goatee too, won't you?"

Ice were Perlman's eyes. Icy was the stare that followed Gull out the door.

But he was not safe yet, not while the horse-faced killer was presumably lurking somewhere about. The girl appeared silently and put her hand in his.

Gull gestured silence and strained his hearing. These tunnels were so dark; there were so many cul-de-sacs where an assassin could hide—

"Listen," he hissed. "Hear it? There!"

From the shadows, distant but approaching, came the sound of an uneven step. Tap, *clop*. Tap, *clop*.

The girl frowned. "A man with one leg?" she guessed.

"No, no! Can't you recognize it? It's a normal man—*but with one shoe hanging loose.*"

She caught her breath. "Oh!"

"That's right," said Gull somberly, "the old shoelace trick. And I haven't time to deal with him now. Can you draw him off?"

She said steadily, "If I 'ave to, I can."

"Good. Just give me five minutes. I want to look around and—effect some changes, I think." He listened, the step was closer now. He whispered, "Tall, long-faced man with big teeth. I think that's him. Know him?"

"Certainly, dear Meesta Gull. Clarence T. Reik. 'E's a killer."

Gull grinned tautly; he had thought as much. The partner of Harry Rosencranz, of course; one had attacked him at the hotel, the other was stalking him with a sharpened shoelace in the warrens under the city.

"Go along with you then," he ordered. "There's a good girl. Remember, five minutes."

He felt the quick brush of her lips against his cheek. "Give me 'alf a minute," she said. "Then, dear Meesta Gull, *run.*"

And she sprang one way, he another. The approaching tap, *clop* paused a split-second's hesitation.

Then it was going after her, its tempo rapid now, its sound as deadly as the irritable rattle of a basking snake.

Gull had his five minutes. He only prayed that it had not been bought at a higher price than he wanted to pay.

There in the Black Hat warrens under Heliopolis Johan Gull fulfilled the trust .5 placed in him. He had only moments. Moments would be enough. For almost at once he knew. And he leaned against the nitered stone walls of the catacomb, marveling at the depth and daring of the Black Hat plan. Before him a chamber of headless, limbless mannikins awaited programming and assembly. They were green and tiny. In another chamber six flying saucers stood in proud array. Each of them held a ring of leather-cushioned seats. Behind him was a vast hall where signpainters had left their handiwork for the moment: *Read the OAHSPE Bible,* cried one sign; *Five Minutes for $5.* And another clamored, *Welcome to UFOland.*

Gull nodded in unwilling tribute. The Black Hats had planned well . . .

A sound of light, running footsteps brought him back to reality. The pale shadow of the girl raced toward him. "Well done!" he whispered, urging her on. "Just one more time around and I'll be through."

"It's 'ot work, dear Meesta Gull," she laughed; but she obeyed. He froze until she was out of sight, and the lumbering dark figure that followed her. And then he set to work.

When she came by again he was ready.

Quickly he leaped to the center of the corridor, gestured her to safety. She concealed herself in a doorway, panting, her eyes large but unafraid. And the pounding, deadly sound of her pursuer grew louder.

Fourteen semester hours of karate, a seminar in *le savate* and a pair of brass knuckles. All came to the aid of Johan Gull in that moment, and he had need of them. He propelled himself out of the shadows feet first, directly into the belly of the huge, long-faced man who was shambling down the dimly lit corridor. The man's eyes were dull but his great yellowed teeth were bared in a grin as he moved ferally along the stone floor, a thin, lethal wand in one hand, dangerous, ready.

Ready for a fleeing victim. Not ready for Johan Gull.

For Gull came in *under* the deadly needle. Even as he was plunging into the man's solar plexus he was reaching up with one hand, twisting around with the other. It was no contest. Gull broke the weapon-bearing arm between wrist and elbow, butted the man into paralysis, kicked him in the skull as he fell, snatched the weapon and was away, the girl trailing behind him.

"Hurry!" he called. "If he comes to, they'll box us in here!" As he ran he worked one tip of the stiffened shoelace. Ingenious! Twisted one way, it slipped into limpness; twisted the other, it extended itself to become a deadly weapon. Gull chuckled and cast it away. Up the stairs they ran and through the cover dentist's office. The gnomelike dentist squalled in surprise and ran at them with a carbide drill, hissing hatred; but Gull

chopped him down with the flat of a hand. They were free.

And the final battle was about to be fought.

VIII

"You 'ave a plan, Meesta Gull?"

"Of course." He glanced about warily. No Black Hats were in sight as he led her through the bright, opulent doors of the Heliopolis Casino.

"You going to fight them single-'anded?"

"Fight? My dear girl! Who said anything about fighting?" The chef de chambre was bowing, smiling, welcoming them in.

"But— But— But if you do not fight them, dear Meesta Gull, then 'ow will you proceed?"

Gull grinned tautly and led her to the bar, from which he could observe everything that was going on. He said only, "Money. No more questions now, there's a good girl."

He called for wine and glanced warily about. The Casino was host that night, as it was every night, to a gay and glittering crowd. Behind potted lichens a string trio sawed away at Boccherini and Bach, while the wealthiest and most fashionable of nine planets strolled and laughed and gamed away fortunes. Gull sipped his wine and stroked his goatee, his eyes alert. Now, if he had gauged his man aright . if he had assessed the strategy that would win correctly . . .

It could all be very easy, he thought, pleased. And he could enjoy a very pleasant half hour's entertainment into the bargain.

Gull smiled and stroked the girl's hand. She responded with a swift look of trust and love. In the glowing silky

fabric of the dress he had commandeered for her she was a tasty morsel, he thought. Once this Black Hat ploy had been countered, there might be time for more lighthearted pursuits—

"Attend!" she whispered sharply.

Gull turned slowly. So near his elbow as to be almost touching stood the tall, saturnine figure of Perlman. They stood for a moment in a tension of locked energies, eyes gazing into eyes. Then Perlman nodded urbanely and turned away. Gull heard him whisper to a passing houseman. "Atthay's the erkjay."

Gull leaned to the girl. "I don't speak Solex Mal," he said softly. "You'll have to translate for me."

She replied faithfully, " 'E just identified you to the 'ouseman."

He gave her an imperceptible nod and followed Perlman with his eyes. The Black Hat did not look toward Gull again. Smiling, exchanging a word now and then with the other guests, he was moving steadily toward the gaming tables. Gull allowed himself to draw one breath of satisfaction.

Score one for his deduction! Perlman was going to play.

He nodded to the girl and began to drift toward the tables himself. Give it time, he counseled himself. There's no hurry. Let it build. You were right this far, you'll be right again.

"Believe I'll play a bit," he said loudly. "Won't you sit here and watch, my dear?"

Silently the girl took a seat beside him at the table. Casually—but feeling, and relishing, the cold gambling tinge that spread upward from the pit of his stomach, inflaming his nerves, speeding the flow of his blood in his veins—Gull gestured to the croupier and began to play.

He did not look across the table at the polite, assured face of Perlman. He did not need to. This game had only two players—or only two that mattered. As he took the dice for his turn, Gull reflected with comfort and satisfaction that soon there would be only one.

Half an hour later he was all but broke.

Across the table Perlman's expression had broadened from polite interest, through amusement to downright contempt. Gull's own face wore a frown; his hands shook, angering him; he felt the first cold pricklings of fear.

Confound the man, thought Gull, his luck is fantastic! If indeed it was luck. But no, he told himself angrily, he could not cop out so cozily; the tables were honest. Face truth: He had simply run up against a superb gambler.

"Hell of a time for it to happen," he grumbled.

The girl leaned closer. "Pardon? You spoke?"

"No, no," Gull said irritably, "I—uh, was just thinking out loud. Listen. You got any money on you?"

She said doubtfully, "Perhaps . . . a little bit . . ."

"Give it to me," he demanded. "No! Under the table. I don't want everybody to see." But it was too late; across the table Perlman had not missed the little byplay. He was almost laughing openly now as he completed his turn and passed the dice to Gull.

Gull felt himself breathing hard. He accepted the thin sheaf of bills from the girl, glanced at it quickly. Not much! Not much at all for what he had to do. He could stretch it out, make it last—but for how long? And with the game running against him . . .

Silently Gull cursed and studied the table. Before him the wealth of an empire was piled in diamond

chips and ruby, in pucks of glittering emerald and disks of glowing gold.

Politely the croupier said, "It is your play, m'sieur."

"Sure, sure." But still Gull hesitated. To gain time he tossed the girl's wad down before the croupier and demanded it be exchanged for chips.

Across the table Perlman's look was no longer either amusement or contempt. It was triumph.

Gull took a deep breath. This was more than a game, he reminded himself. It was the careful carrying out of a thoughtfully conceived strategy. Had he lost sight of that?

Once again in control of himself, he took out a cigarette and lighted it. He tipped the gleaming, flat lighter and glanced, as though bored, at its polished side.

Tiny in the reflection he could see the moving, bright figures in the room, the gorgeously dressed women, the distinguished men. But some were not so distinguished. Some were lurking in the draperies, behind the potted lichens. A great pale creature with teeth like a horse, eyes like a dim-brained cat. Another with the mahogany face of a prospector off the Martian plains. And others.

Perlman's men had come to join him. The moment was ready for the taking.

Abruptly Johan Gull grinned. Risk it all! Win or lose! Let the game decide the victor—either he would clean out Perlman here and now, and starve out his larger game for lack of the cash to carry it through, or he himself would lose. He said to the croupier, "Keep the chips. Take these too." And he pushed over all his slim remaining stack.

"You wish to build, m'sieur?" it asked politely.

"Exactly. A hotel, if you please. On the"—Gull hesitated, but not out of doubt; his pause was only to ob-

serve the effect on Perlman—"yes, that's right. On the Boardwalk."

And Gull threw the dice.

Time froze for him. It was not a frightening thing; he was calm, confident, at ease. The world of events and sensation seemed to offer itself to him for the tasting—the distant shout of the UFO demonstrators in the streets—*poor fools! I wonder what they'll do when they find they've been duped;* Alessandra's perfumed breath tickling his ear—*sweet, charming girl;* the look of threat and anger on Perlman's face; the stir of ominous movement in the draperies. Gull absorbed and accepted all of it, the sounds and scents, the bright moving figures and the glitter of wealth and power, the hope of victory and the risk. But he did not fear the risks. He saw Ventnor Avenue and Marvin Gardens looming ahead on his piece on the board and smiled. He was certain the dice were with him.

And when the spots came up he seemed hardly to glance at them; he moved his counter with a steady hand, four, five, eight places; came to rest on "Chance," selected a card from the stack, turned it over and scanned its message.

He looked up into the hating eyes of Perlman. "Imagine," he breathed. "I appear to have won second prize in a beauty contest. You'll have to give me fifteen dollars."

And Perlman's poise broke. Snarling, he pushed across the chips, snatched the dice from Gull and contemptuously flung them down. The glittering cubes rattled and spun. Gull did not have to look at the board; the position was engraved on his brain. A five would put Perlman on Park Place, with four houses: damaging, but not deadly. An eight or higher would carry him safely to

"Go" and beyond, passing the zone of danger and replenishing his bankroll. But a seven . Ah, a seven! The Boardwalk, with a hotel! And the first die had already come to rest, displaying a four.

The second stopped.

There was a gasp from the glittering crowd as three bright pips turned upward to the light.

Gull glanced down at the dice, then across at Perlman. "How unfortunate," he murmured politely, extending a hand to Perlman—and only Perlman could see the bright, deadly little muzzle that pointed out of it toward him. "You seem to have landed on my property. I'm afraid you've lost the game."

—And he was up and out of his chair, standing clear, as the pencil of flame from the shelter of the draperies bit through the smoky air where his head had just been.

"Down!" he shouted to the girl and snapped a shot at Rosencranz; heard the man's bellow of pain and saw, out of the corner of his eye, that the girl had disobeyed his order; she had drawn a weapon of her own and was trading shot for shot with the Black Hats that ringed the room. "Idiot!" Gull cried, but his heart exulted *Good girl!* even as he was turning to blast the next Black Hat. There were nine of them, all armed, all drawing their weapons or, like Rosencranz, having fired them already. It was not an equal contest. Five shots from Gull, five from the girl—she missed one—and all the Black Hats were on the floor, writhing or very still. All but one. Perlman! Whirling back to face him, Gull found he was gone.

But he couldn't be far. Gull caught the flicker of motion in the gaping crowd at the door that showed where he had gone, and followed. At the entrance Gull caught a glimpse of him and fired; at the corner, plunging through a knot of milling, excited UFOlogists, Gull saw

him again—almost too late. Coolly and cleverly Perlman had waited him out, his weapon drawn now. The blast sliced across the side of Gull's head like a blow from a cleaver; stunned, hurting, Gull drove himself on.

And as Perlman, gaping incredulously, turned belatedly to flee again, he tripped, and stumbled, and Gull was on him. His head was roaring, his hold on consciousness precarious; but he pinned Perlman's arms in a desperate flurry of strength and panted, "That's enough! Give it up or I'll burn your head off." The trapped man surged up but Gull withstood it and cried: "Stop! I want to take you back to .5 alive—don't make me kill you!" The Black Hat spat one angry sentence; Gull gasped and recoiled; Perlman grabbed for the weapon, they struggled—

A bright line of flame leaped from the gun to Perlman's forehead; and in that moment the leader of the Black Hats in Heliopolis ceased to be.

Waves of blackness swept over Johan Gull. He fell back into emptiness just as the girl came running up, dropped to the ground beside him, sobbing, "Johan! My dear, *dear* Meesta Gull."

Hurt and almost out he managed to grin up at her. "Cash in my chips for me," he gasped. "We've won the game!"

IX

And then it was the roses, roses all the way. The local Bureau Chief appeared and efficiently arranged for medical attention, fresh clothes and a drink. The girl stayed beside him while Gull dictated a report and demanded immediate reservations back to Marsport—for *two*, he specified fiercely. They were produced, and by the

time they disembarked and headed for the War Room Gull was nearly his old self. He was admitted at once to .5's office, and recognized it as a mark of signal favor when the girl was allowed in with him.

They stood there, proud and silent, in the presence of .5 and his secretary, and Gull's hand was firm on the girl's. What a thoroughbred she was, he thought admiringly, noting from the corner of his eye how her gaze took in every feature of the room so few persons had ever seen; how she studied .5's somber expression and hooded eyes, but did not quail before them; how patiently and confidently she waited for McIntyre to leave off writing in his notebook and speak to them. She would be a fit wife for him, thought Johan Gull with quiet certainty; and she would make a fine agent for Security. And so would Kim, and Marie Celeste, and little Patty. A very successful mission all around, thought Gull cheerfully, thinking of the wad of bills that Perlman's losses had put into his wallet.

"When you're *quite* ready, Gull," said McIntyre.

Gull jumped. "Oh, sorry," he said. "Excuse me, sir," he added to .5, whose expression showed no particular resentment at being kept waiting while one of his agents was woolgathering, merely the usual patient weariness. "I guess you want a report."

".5 has already seen your report," McIntyre reproved him. "He is a little concerned about your failure to obey standing orders, of course. A live captive is worth a lot more than a dead loser."

"Well, yes, I know that's right. But—" Gull hesitated.

"Well?"

Gull flushed and turned to .5 himself. "You see, sir, it was something Perlman *said*. Nasty sort of remark. Cheap. Just what you'd expect, from— Anyway, sir, it was about you. He said—" Gull swallowed, feeling self-

conscious and stupid. The warm pressure of the girl's hand showed him her sympathy, but he still felt like twelve kinds of a fool bringing it up.

"Gull! Spit it out before .5 loses his patience!"

Gull shrugged, looked his chief in the eye and said rapidly, "Perlman said you've been dead since '97, sir." And he waited for the blow to fall.

Surprisingly, it did not. .5 merely continued to look at him, silently, levelly, appraisingly. There was not even a hint of surprise in his expression. At length McIntyre laughed one sharp, desiccated sort of laugh and Gull turned gratefully toward him, glad to be taken off the hook. "Nonsense, of course, McIntyre," he said. "I really hated to have to say it."

But McIntyre was raising a hand, chuckling in a sort of painful way, as though laughter hurt him. "Never mind, Gull," he said. "After all, you're not expected to evaluate information. Just go on and do your job. And now, .5 had best be left alone for a while; there are other matters concerning us, you know."

And, very grateful to have it happen, Gull found himself and the girl outside. He discovered he was sweating. "Whew," he exclaimed. "Wouldn't want to go through *that* again. And now, my dear, I suggest a drink —thereafter a wedding—then a honeymoon. Not necessarily in that order."

"Gladly, dearest Meesta Gull!" she cried. "And I don't give a 'ang about the order!"

MASQUE OF THE RED SHIFT

by Fred Saberhagen

I

Finding himself alone and unoccupied, Felipe Nogara chose to spend a free moment in looking at the thing that had brought him out here beyond the last fringe of the galaxy. From the luxury of his quarters he stepped up into his private observation bubble. There, in a raised dome of invisible glass, he seemed to be standing outside the hull of his flagship *Nirvana.*

Under that hull, "below" the *Nirvana's* artificial gravity, there slanted the bright disk of the galaxy, including in one of its arms all the star-systems that Earth-descended man had yet explored. But in whatever direction Nogara looked, bright spots and points of light were plentiful. They were other galaxies, marching away at their recessional velocities of tens of thousands of miles per second, marching on out to the optical horizon of the universe.

Nogara had not come here to look at galaxies, however; he had come to look at something new, at a phenomenon never before seen by men at such close range.

It was made visible to him by the apparent pinching-together of the galaxies beyond it, and by the clouds and streamers of dust cascading into it. The star that formed the center of the phenomenon was itself held beyond human sight by the strength of its own gravity. Its mass, perhaps a billion times that of Sol, so bent spacetime around itself that not a photon of light could escape it with a visible wavelength.

The dusty debris of deep space tumbled and churned, falling into the grip of the hypermass. The falling dust built up static charges until lightning turned it into luminescent thunderclouds, and the flicker of the vast lightning shifted into the red before it vanished, near the bottom of the gravitational hill. Probably not even a neutrino could escape this sun. And no ship would dare approach much closer than *Nirvana* now rode.

Nogara had come out here to judge for himself if the recently discovered phenomenon might soon present any danger to inhabited planets; ordinary suns would go down like chips of wood into a whirlpool if the hypermass found them in its path. But it seemed that another thousand years would pass before any planets had to be evacuated; and before then the hypermass might have gorged itself on dust until its core imploded, whereupon most of its substance could be expected to reenter the universe in a most spectacular but less dangerous form.

Anyway, in another thousand years it would be someone else's problem. Right now it might be said to be Nogara's—for men said that he ran the galaxy, if they said it of anyone.

A communicator sounded, calling him back to the enclosed luxury of his quarters, and he walked down quickly, glad of a reason to get out from under the galaxies.

He touched a plate with one strong and hairy hand. "What is it?"

"My lord, a courier ship has arrived. From the Flamland system. They are bringing . . ."

"Speak plainly. They are bringing my brother's body?"

"Yes, my lord. The launch bearing the coffin is already approaching *Nirvana.*"

"I will meet the courier captain, alone, in the Great Hall. I want no ceremony. Have the robots at the airlock test the escort and the outside of the coffin for infection."

"Yes, my lord."

The mention of disease was a bit of misdirection. It was not the Flamland plague that had put Nogara's half-brother Johann Karlsen into a box, though that was the official story. The doctors were supposed to have frozen the hero of the Stone Place as a last resort, to prevent his irreversible death.

An official lie was necessary because not even High Lord Nogara could lightly put out of the way the one man who had made the difference at the Stone Place nebula. In that battle seven years ago the berserker machines had been beaten; if they had not been, intelligent life might already be extinct in the known galaxy. The berserkers were huge automated warships, built for some conflict between long-vanished races and now the enemies of everything that lived. The fighting against them was still bitter, but since the Stone Place it seemed that life in the galaxy would survive.

The Great Hall was where Nogara met daily for feasting and pleasure with the forty or fifty people who were with him on *Nirvana,* as aides or crewmen or entertainers. But when he entered the Hall now he found it empty, save for one man who stood at attention beside a coffin.

Johann Karlsen's body and whatever remained of his life were sealed under the glass top of the heavy casket, which contained its own refrigeration and revival systems, controlled by a fiber-optic key theoretically impossible to duplicate. This key Nogara now demanded, with a gesture, from the courier captain.

The captain had the key hung round his neck, and it took him a moment to pull the golden chain over his head and hand it to Nogara. It was another moment before he remembered to bow; he was a spaceman and not a courtier. Nogara ignored the lapse of courtesy. It was his governors and admirals who were reinstituting ceremonies of rank; he himself cared nothing about how subordinates gestured and postured, so long as they obeyed intelligently.

Only now, with the key in his own hand, did Nogara look down at his frozen half-brother. The plotting doctors had shaved away Johann's short beard, and his hair. His lips were marble pale, and his sightless open eyes were ice. But still the face above the folds of the draped and frozen sheet was undoubtedly Johann's. There was something that would not freeze.

"Leave me for a time," Nogara said. He turned to face the end of the Great Hall and waited, looking out through the wide viewpoint to where the hypermass blurred space like a bad lens.

When he heard the door ease shut behind the courier captain he turned back—and found himself facing the short figure of Oliver Mical, the man he had selected to replace Johann as governor on Flamland. Mical must have entered as the spaceman left, which Nogara thought might be taken as symbolic of something. Resting his hands familiarly on the coffin, Mical raised one graying eyebrow in his habitual expression of

weary amusement. His rather puffy face twitched in an overcivilized smile.

"How does Browning's line go?" Mical mused, glancing down at Karlsen. " 'Doing the king's work all the dim day long'—and now, this reward of virtue."

"Leave me," said Nogara.

Mical was in on the plot, as was hardly anyone else except the Flamland doctors. "I thought it best to appear to share your grief," he said. Then he looked at Nogara and ceased to argue. He made a bow that was mild mockery when the two of them were alone, and walked briskly to the door. Again it closed.

So, Johann. If you had plotted against me, I would have had you killed outright. But you were never a plotter, it was just that you served me too successfully, my enemies and friends alike began to love you too well. So here you are, my frozen conscience, the last conscience I'll ever have. Sooner or later you would have become ambitious, so it was either do this to you or kill you.

Now I'll put you away safely, and maybe some day you'll have another chance at life. It's a strange thought that some day you may stand musing over my coffin as I now stand over yours. No doubt you'll pray for what you think is my soul . . . I can't do that for you, but I wish you sweet dreams. Dream of your Believers' heaven, not of your hell.

Nogara imagined a brain at absolute zero, its neurons super-conducting, repeating one dream on and on and on. But that was nonsense.

"I cannot risk my power, Johann." This time he whispered the words aloud. "It was either this or have you killed." He turned again to the wide viewport.

II

"I suppose Thirty-three's gotten the body to Nogara already," said the Second Officer of Esteeler Courier Thirty-four, looking at the bridge chronometer. "It must be nice to declare yourself an emperor or whatever, and have people hurl themselves all over the galaxy to do everything for you."

"Can't be nice to have someone bring you your brother's corpse," said Captain Thurman Holt, studying his astrogational sphere. His ship's C-plus drive was rapidly stretching a lot of timelike interval between itself and the Flamland system. Even if Holt was not enthusiastic about his mission, he was glad to be away from Flamland, where Mical's political police were taking over.

"I wonder," said the Second, and chuckled.

"What's that mean?"

The Second looked over both shoulders, out of habit formed on Flamland. "Have you heard this one?" he asked. "Nogara is God—but half of his spacemen are atheists."

Holt smiled, but only faintly. "He's no mad tyrant, you know. Esteel's not the worst-run government in the galaxy. Nice guys don't put down rebellions."

"Karlsen did all right."

"That's right, he did."

The Second grimaced. "Oh sure, Nogara could be worse, if you want to be serious about it. He's a politician. But I just can't stand that crew that's accumulated around him the last few years. We've got an example on board now of what they do. If you want to know the truth I'm a little scared now that Karlsen's dead."

"Well, we'll soon see them." Holt sighed, and stretched. "I'm going to look in on the prisoners. The bridge is yours, Second."

"I relieve you, sir. Do the man a favor and kill him, Thurm."

A minute later, looking through the spy-plate into the courier's small brig, Holt could wish with honest compassion that his male prisoner was dead.

He was an outlaw chieftain named Janda, and his capture had been the last success of Karlsen's Flamland service, putting a virtual end to the rebellion. Janda had been a tall man, a brave rebel, and a brutal bandit. He had raided and fought against Nogara's Esteeler empire until there was no hope left, and then he had surrendered to Karlsen.

"My pride commands me to conquer my enemy," Karlsen had written once, in what he thought was to be a private letter. "My honor forbids me to humble or hate my enemy." But Mical's political police operated with a different philosophy.

The outlaw might still be longboned, but Holt had never seen him stand tall. The manacles still binding his wrists and ankles were of plastic and supposedly would not abrade human skin, but they served no sane purpose now and Holt would have removed them if he could.

A stranger seeing the girl Lucinda who sat now at Janda's side to feed him, might have supposed her to be his daughter. She was his sister, five years younger than he. She was also a girl of rare beauty, and perhaps Mical's police had motives other than mercy in sending her to Nogara's court unmarked and unbrainwashed. It was rumored that the demand for certain kinds of entertainment was strong among the courtiers, and the turnover among the entertainers high.

Holt had so far kept himself from believing such stories. He opened the brig now—he kept it locked only to prevent Janda's straying out and falling childlike into an accident—and went in.

When the girl Lucinda had first come aboard his ship her eyes had shown helpless hatred of every Esteeler. Holt had been gentle and as helpful as possible to her in the days since then, and there was not even dislike in the face she raised to him now—there was a hope which it seemed she had to share with someone.

She said: "I think he spoke my name, a few minutes ago."

"Oh?" Holt bent to look more closely at Janda, and could see no change. The outlaw's eyes still stared glassily, the right eye now and then dripping a tear that seemed to have no connection with any kind of emotion. Janda's jaw was as slack as ever, and his whole body as awkwardly slumped.

"Maybe—" Holt didn't finish.

"What?" She was almost eager.

Gods of Space, he couldn't let himself get involved with this girl. He almost wished to see hatred in her eyes again.

"Maybe," he said gently, "it will be better for your brother if he doesn't make any recovery now. You know where he's going."

Lucinda's hope, such as it was, was shocked away by his words. She was silent, staring at her brother as if she saw something new.

Holt's wrist-intercom sounded.

"Captain here," he acknowledged.

"Sir, reporting a ship detected and calling us. Bearing five o'clock level to our course. Small and normal."

The last three words were the customary reassurance that a sighted ship was not possibly a berserker's giant

hull. Berserkers all looked much alike, and what Flamland outlaws were left had no deep space ships, so Holt had no reason to be cautious.

He went casually back to the bridge and looked at the small shape on the detector screen. It was unfamiliar to him, but that was hardly surprising, as there were many shipyards orbiting many planets. Why, though, should any ship approach and hail him in deep space?

Plague?

"No, no plague," answered a radio voice, through bursts of static, when he put the question to the stranger. The video signal from the other ship was also jumpy, making it hard to see the speaker's face. "Caught a speck of dust on my last jump, and my fields are shaky. Will you take a few passengers aboard?"

"Certainly." For a ship on the brink of a C-plus jump to collide with the gravitation field of a sizable dustspeck was a rare accident, but not unheard-of; and it would explain the noisy communications. There was still nothing to alarm Holt.

The stranger sent over a launch which clamped to the courier's airlock. Wearing a smile of welcome for distressed passengers, Holt opened the lock. In the next moment he and the half-dozen men who made up his crew were caught helpless by an inrush of man-sized machines—they were a berserker's boarding party, cold and ancient, merciless as nightmare.

The machines seized the courier so swiftly and efficiently that no one could offer real resistance, but they did not immediately kill any of the humans. They tore the drive units from one of the lifeboats and herded Holt and his crew and his erstwhile prisoners into the boat.

"It wasn't a berserker on the screen, it wasn't," the

Second Officer kept repeating to Holt. The humans sat side by side, jammed against one another in the small space. The machines were allowing them air and water and food, and had started to take them out one at a time for questioning.

"I know, it didn't look like one," Holt answered. "The berserkers are probably forming themselves into new shapes, building themselves new weapons. That's only logical, after the Stone Place. The only odd thing is that no one foresaw it."

A hatch clanged open, and a pair of roughly man-shaped machines entered the boat, picking their way precisely among the nine cramped humans until they reached the one they wanted.

"No, he can't talk!" Lucinda shrieked. "Don't take him!"

But the machines could not or would not hear her. They pulled Janda to his feet and marched him out. The girl followed, dragging at them, trying to argue with them. Holt could only scramble uselessly after her in the narrow space, afraid that one of the machines would turn and kill her. But they only kept her from following them out of the lifeboat, pushing her back from the hatch with metal hands as gently resistless as time. Then they were gone with Janda, and the hatch was closed again. Lucinda stood gazing at it blankly. She did not move when Holt put his arm around her.

III

After a timeless period of waiting, the humans saw the hatch open again. The machines were back, but they did not return Janda. Instead they had come to take Holt.

Vibrations echoed through the courier's hull; the ma-

chines seemed to be rebuilding her. In a small chamber sealed off by a new bulkhead from the rest of the ship, the berserker computer-brain had set up electronic eyes and ears and a speaker for itself, and here Holt was taken to be interrogated.

Speaking with a collection of recorded human words, the berserker questioned Holt at great length. Almost every question concerned Johann Karlsen. It was known that the berserkers regarded Karlsen as their chief enemy, but this one seemed to be obsessed with him—and unwilling to believe that he was really dead.

"I have captured your charts and astrogational settings," the berserker reminded Holt. "I know your course is to *Nirvana*, where supposedly the non-functioning Karlsen has been taken. Describe this *Nirvana*-ship used by the life-unit Nogara."

So long as it had asked only about a dead man, Holt had given the berserker straight answers, not wanting to be tripped up in a useless lie. But a flagship was a different matter, and now he hesitated. Still, there was little he could say about *Nirvana* if he wanted to. And he and his fellow prisoners had had no chance to agree on any plan for deceiving the berserker; certainly it must be listening to everything they said in the lifeboat.

"I've never seen the *Nirvana*," he answered truthfully. "But logic tells me it must be a strong ship, since the highest human leaders travel on it." There was no harm in telling the machine what it could certainly deduce for itself.

A door opened suddenly, and Holt stared in surprise as a strange man entered the interrogation chamber. Then he saw that it was not a man, but some creation of the berserker. Perhaps its flesh was plastic, perhaps some product of tissue-culture.

"Hi, are you Captain Holt?" asked the figure. There was no gross flaw in it, but a ship camouflaged with the greatest skill looks like nothing so much as a ship that has been camouflaged.

When Holt was silent, the figure asked: "What's wrong?" Its speech alone would have given it away, to an intelligent human who listened carefully.

"You're not a man," Holt told it.

The figure sat down and went limp.

The berserker explained: "You see I am not capable of making an imitation life-unit that will be accepted by real ones face to face. Therefore I require that you, a real life-unit, help me make certain of Karlsen's death."

Holt said nothing.

"I am a special device," the berserker said, "built by the berserkers with one prime goal, to bring about with certainty Karlsen's death. If you help me prove him dead, I will willingly free you and the other life-units I now hold. If you refuse to help, all of you will receive the most unpleasant stimuli until you change your mind."

Holt did not believe that it would ever willingly set them free. But he had nothing to lose by talking, and he might at least gain for himself and the others a death free of most unpleasant stimuli. Berserkers preferred to be efficient killers, not sadists, though during the long war they had become experts on the human nervous system.

"What sort of help do you want from me?" Holt asked.

"When I have finished building myself into this courier we are going on to *Nirvana,* where you will deliver your prisoners. I have read the orders. After being interviewed by the human leaders on *Nirvana,* the prisoners are to be taken on to Esteel for confinement. Is it not so?"

"It is."

The door opened again, and Janda shuffled in, bent and bemused.

"Can't you spare this man any more questioning?" Holt asked the berserker. "He can't help you in any way."

There was only silence. Holt waited uneasily. At last, looking at Janda, he realized that something about the outlaw had changed. The tears had stopped flowing from his right eye.

When Holt saw this he felt a mounting horror that he could not have explained, as if his subconscious already knew what the berserker was going to say next.

"What was bone in this life-unit is now metal," the berserker said. "Where blood flowed, now preservatives are pumped. Inside the skull I have placed a computer, and in the eyes are cameras to gather the evidence I must have on Karlsen. To match the behavior of a brain-washed man is within my capability."

"I do not hate you," Lucinda said to the berserker when it had her alone for interrogation. "You are an accident, like a planet-quake, like a pellet of dust hitting a ship near light-speed. Nogara and his people are the ones I hate. If his brother was not dead I would kill him with my hands and willingly bring you his body."

"Courier Captain? This is Governor Mical, speaking for the High Lord Nogara. Bring your two prisoners over to *Nirvana* at once," he ordered.

"At once, sir."

After coming out of C-plus travel within sight of *Nirvana,* the assassin-machine had taken Holt and Lucinda from the lifeboat, then it had let the boat, with Holt's crew still on it, drift out between the two ships, as if men were using it to check the courier's fields. The

men on the boat were to be the berserker's hostages, and its shield if it was discovered.

And by leaving them there, it doubtless wanted to make more credible the prospect of their eventual release.

Holt had not known how to tell Lucinda of her brother's fate, but at last he managed somehow. She had wept for a minute, and then she had become very calm.

Now the berserker put Holt and Lucinda into the crystal globe that served it for a launch, for the trip to *Nirvana*. The machine that had been Lucinda's brother was aboard the launch already, waiting, slumped and broken-looking as the man had actually been in the last days of his life.

When she saw that figure, Lucinda stopped. Then in a clear voice she said: "Machine, I wish to thank you. You have done my brother a kindness no human would do for him. I think I would have found a way to kill him myself before his enemies could torture him any more."

IV

The *Nirvana*'s airlock was strongly armored, and equipped with automated defenses that would have repelled a rush of boarding machines, just as *Nirvana*'s beams and missiles would have beaten off any heavy-weapons attack a courier, or a dozen couriers, could launch. The berserker had foreseen all this.

An officer welcomed Holt aboard.

"This way, Captain, we're all waiting."

"All?"

The officer had the well-fed, comfortable look that came with safe and easy duty. His eyes were busy ap-

praising Lucinda. "There's a celebration under way in the Great Hall. Your prisoners' arrival has been much anticipated."

Music throbbed in the Great Hall, and dancers writhed in costumes more obscene than any nakedness. From a table running almost the length of the Hall, serving machines were clearing the remnants of what had been a feast. In a thronelike chair behind the center of the table sat the High Lord Nogara, a rich cloak thrown over his shoulders, pale wine before him in a crystal goblet. Forty or fifty revelers flanked him at the long table, men and women and a few of whose sex Holt could not at once be sure. All were drinking and laughing, and some were donning masks and costumes, making ready for further celebration.

Heads turned at Holt's entrance, and a moment of silence was followed by a cheer. In all the eyes and faces turned now toward his prisoners, Holt could see nothing like pity.

"Welcome, Captain," said Nogara in a pleasant voice, when Holt had remembered to bow. "Is there news from Flamland?"

"None of great importance, sir."

A puffy-faced man who sat at Nogara's right hand leaned forward on the table. "No doubt there is great mourning for the late governor?"

"Of course, sir." Holt recognized Mical. "And much anticipation of the new."

Mical leaned back in his chair, smiling cynically. "I'm sure the rebellious population is eager for my arrival. Girl, were you eager to meet me? Come, pretty one, round the table, here to me." As Lucinda slowly obeyed, Mical gestured to the serving devices. "Robots, set a chair for the man—there, in the center of the floor. Captain, you may return to your ship."

Felipe Nogara was steadily regarding the manacled figure of his old enemy Janda, and what Nogara might be thinking was hard to say. But he seemed content to let Mical give what orders pleased him.

"Sir," said Holt to Mical. "I would like to see—the remains of Johann Karlsen."

That drew the attention of Nogara, who nodded. A serving machine drew back sable draperies, revealing an alcove in one end of the Hall. In the alcove, before a huge viewport, rested the coffin.

Holt was not particularly surprised; on many planets it was the custom to feast in the presence of the dead. After bowing to Nogara he turned and saluted and walked toward the alcove. Behind him he heard the shuffle and clack of Janda's manacled movement, and held his breath. A muttering passed along the table, and then a sudden quieting in which even the throbbing music ceased. Probably Nogara had gestured permission for Janda's walk, wanting to see what the brainwashed man would do.

Holt reached the coffin and stood over it. He hardly saw the frozen face inside it, or the blur of the hypermass beyond the port. He hardly heard the whispers and giggles of the revelers. The only picture clear in his mind showed the faces of his crew as they waited helpless in the grip of the berserker.

The machine clothed in Janda's flesh came shuffling up beside him, and its eyes of glass stared down into those of ice. A photograph of retinal patterns taken back to the waiting berserker for comparison with old captured records would tell it that this man was really Karlsen.

A faint cry of anguish made Holt look back toward the long table, where he saw Lucinda pulling herself

away from Mical's clutching arm. Mical and his friends were laughing.

"No, Captain, I am not Karlsen," Mical called down to him, seeing Holt's expression. "And do you think I regret the difference? Johann's prospects are not bright. He is rather bounded by a nutshell, and can no longer count himself king of infinite space!"

"Shakespeare!" cried the sycophant, showing appreciation of Mical's literary erudition.

"Sir." Holt took a step forward. "May I—may I now take the prisoners back to my ship?"

Mical misinterpreted Holt's anxiety. "Oh ho! I see you appreciate some of life's finer things, Captain. But as you know, rank has its privileges. The girl stays here."

He had expected them to hold on to Lucinda, and she was better here than with the berserker.

"Sir, then if—if the man alone can come with me. In a prison hospital on Esteel he may recover—"

"Captain," Nogara's voice was not loud, but it hushed the table. "Do not *argue* here."

"No sir."

Mical shook his head. "My thoughts are not yet of mercy to my enemies, Captain. Whether they may soon turn in that direction—well, that depends." He again reached out a leisurely arm to encircle Lucinda. "Do you know, Captain, that hatred is the true spice of love?"

Holt looked helplessly back at Nogara. Nogara's cold eye said: One more word, courier, and you find yourself in the brig. I do not give two warnings.

If Holt cried berserker now, the thing in Janda's shape might kill everyone in the Hall before it could be stopped. He knew it was listening to him, watching his movements.

"I—I am returning to my ship," he stuttered. Nogara

looked away, and no one else paid him much attention. "I will—return here—in a few hours perhaps. Certainly before I drive for Esteel."

Holt's voice trailed off as he saw that a group of the revelers had surrounded Janda. They had removed the manacles from the outlaw's dead limbs, and they were putting a horned helmet on his head, giving him a shield and spear and a cloak of fur, equipage of an old Norse warrior of Earth—first to coin and bear the dread name of berserker.

"Observe, Captain," mocked Mical's voice. "At our masked ball we do not fear the fate of Prince Prospero. We willingly bring in the semblance of the terror outside!"

"Poe!" shouted the sycophant in glee.

Prospero and Poe meant nothing to Holt, and Mical looked disappointed.

"Leave us, Captain," said Nogara, making a direct order of it.

"Leave, Captain Holt," said Lucinda in a firm, clear voice. "We all know you wish to help those who stand in danger here. Lord Nogara, will Captain Holt be blamed in any way for what happens here when he has gone?"

There was a hint of puzzlement in Nogara's clear eyes. But he shook his head slightly, granting the asked-for absolution.

And there was nothing for Holt to do but go back to the berserker to argue and plead with it for his crew. If it was patient, the evidence it sought might be forthcoming. If only the revelers would have mercy on the thing they thought was Janda.

Holt went out. It had never entered his burdened mind that Karlsen was only frozen.

V

Mical's arm was about her hips as she stood beside his chair, and his voice purred up at her. "Why, how you tremble, pretty one . it moves me that such a pretty one as you should tremble at my touch, yes, it moves me deeply. Now, we are no longer enemies, are we? If we are, I should have to deal harsly with your brother."

She had given Holt time to get clear of the *Nirvana.* Now she swung her arm with all her strength. The blow turned Mical's head halfway round, and made his neat gray hair fly wildly.

There was a sudden hush in the Great Hall, and then a roar of laughter that reddened all of Mical's face to match the handprint on his cheek. A man behind Lucinda grabbed her arms and pinned them. She relaxed until she felt his grip loosen slightly, and then she grabbed up a table knife. There was another burst of laughter as Mical ducked away and the man behind Lucinda seized her again. Another man came to help him and the two of them, laughing, took away the knife and forced her to sit in a chair at Mical's side.

When the governor spoke at last his voice quavered slightly, but it was low and almost calm.

"Bring the man closer," he ordered. "Seat him there, just across the table from us."

While his order was being carried out, Mical spoke to Lucinda in conversational tones. "It *was* my intent, of course, that your brother should be allowed to recover." He paused to see the effect of that statement on her.

"Lying piece of filth," she whispered, smiling.

Mical only smiled back. "Let us test the skill of my

mind-control technicians," he suggested. "I'll wager that no bonds will be needed to hold your brother in his chair, once I have done this." He made a curious gesture over the table, toward the glassy eyes that looked out of Janda's face. "So. But he will still be aware, with every nerve, of all that happens to him. You may be sure of that."

She had planned and counted on something like this happening, but now she felt as if she was exhausted by breathing evil air. She was afraid of fainting, and at the same time wished that she could.

"Our guest is bored with his costume." Mical looked up and down the table. "Who will be first to take a turn at entertaining him?"

There was a spattering of applause as a giggling effeminate arose from a nearby chair.

"Jamy is known for his inventiveness," said Mical in pleasant tones to Lucinda. "I insist you watch closely, now. Chin up!"

On the other side of Mical, Felipe Nogara was losing his air of remoteness. As if reluctantly, he was being drawn to watch. In his bearing was a rising expectancy, winning out over disgust.

Jamy came giggling, holding a small jeweled knife.

"Not the eyes," Mical cautioned. "There'll be things I want him to see, later."

"Oh, certainly!" Jamy twittered. He set the horned helmet gingerly aside, and wiped the touch of it from his fingers. "He'll just start like this on one cheek, with a bit of skin—"

Jamy's touch with the blade was gentle, but still too much for the dead flesh. At the first peeling tug, the whole lifeless mask fell red and wet from around the staring eyes, and his steel berserker-skull grinned out.

Lucinda had just time to see Jamy's body flung across the Hall by a steel-boned arm before the men holding her let go and turned to flee for their lives, and she was able to duck under the table. Screaming bedlam broke loose, and in another moment the whole table went over with a crash before the berserker's strength. The machine, finding itself discovered, thwarted in its primary function of getting away with evidence on Karlsen, took as its secondary goal the old berserker one of simple killing. It moved through the Hall, squatting and hopping grotesquely, mowing its way with scythe-like arms, harvesting howling panic into bundles of bloody stillness.

At the main door, fleeing people jammed one another into immobility, and the assasin worked among them, methodically mangling and slaying. Then it turned and came down the Hall again. It came to Lucinda, still kneeling where the table-tipping had exposed her; but the machine hesitated, recognizing her as a semi-partner in its prime function. In a moment it had dashed on after another target.

It was Nogara, swaying on his feet, his right arm hanging broken. He had come up with a heavy hand-gun from somewhere, and now he fired left-handed as the machine charged down the other side of the over-turned table toward him. The gun-blasts shattered Nogara's friends and furniture but only grazed his moving target.

At last one shot hit home. The machine was wrecked, but its impetus carried it on to knock Nogara down again.

There was a shaky quiet in the Great Hall, which was wrecked as if by a bomb. Lucinda got unsteadily to her feet. There were sobs and moans and gropings everywhere, but no one else was standing.

She picked her way dazedly over to the smashed assassin-machine. She felt only a numbness, looking at the rags of clothing and flesh that still clung to its metal frame. Now in her mind she could see her brother's face as it once was, strong and smiling.

Now there was something that mattered more than the dead, if she could only recall what it was—of course, the berserker's hostages, the good kind spacemen. She could try to trade Karlsen's body for them.

The serving machines, built to face emergencies on the order of spilled wine, were dashing to and fro in the nearest thing to panic that mechanism could achieve. They impeded Lucinda's progress, but she had the heavy coffin wheeled halfway across the Hall when a weak voice stopped her. Nogara had dragged himself up to a sitting position against the overturned table.

He croaked again: "—alive."

"What?"

"Johann's alive. Healthy. See? It's a freezer."

"But we all told the berserker he was dead." She felt stupid with the impact of one shock after another. For the first time she looked down at Karlsen's face, and long seconds passed before she could tear her eyes away. "It has hostages. It wants his body."

"No." Nogara shook his head. "I see now. But no. I won't give him to berserkers, alive." A brutal power of personality still emanated from his broken body. His gun was gone, but his power kept Lucinda from moving. There was no hatred in her now.

She protested: "But there are seven men out there."

"Berserker's like me." Nogara bared pain-clenched teeth. "It won't let prisoners go. Here. The key . . ." He pulled it from inside his torn-open tunic.

Lucinda's eyes were drawn once again to the cold

serenity of the face in the coffin. Then on impulse she ran to get the key. When she did so Nogara slumped over in relief, unconscious or nearly so.

The coffin lock was marked in several positions, and she turned it to EMERGENCY REVIVAL. Lights sprang on around the figure inside, and there was a hum of power.

By now the automated systems of the ship were reacting to the emergency. The serving machines had begun a stretcher-bearer service. Nogara being one of the first victims they carried away. Presumably a robot medic was in action somewhere. From behind Nogara's throne chair a great voice was shouting.

"This is ship defense control, requesting human orders! What is nature of emergency?"

"Do not contact the courier ship!" Lucinda shouted back. "Watch it for an attack. But don't hit the lifeboat!"

The glass top of the coffin had become opaque.

Lucinda ran to the viewport, stumbling over the body of Mical and going on without a pause. By putting her face against the port and looking out at an angle she could just see the berserker-courier, pinkly visible in the wavering light of the hypermass, its lifeboat of hostages a small pink dot still in place before it.

How long would it wait, before it killed the hostages and fled?

When she turned away from the port, she saw that the coffin's lid was open and the man inside was sitting up. For just a moment, a moment that was to stay in Lucinda's mind, his eyes were like a child's, fixed helplessly on hers. Then power began to grow behind his eyes, a power somehow completely different from his brother's and perhaps even greater.

Karlsen looked away from her, taking in the rest of his

surroundings, the devastated Great Hall and the coffin. "Felipe," he whispered, as if in pain, though his half-brother was no longer in sight.

Lucinda moved toward him and started to pour out her story, from the day in the Flamland prison when she had heard that Karlsen had fallen to the plague.

Once he interrupted her. "Help me out of this thing, get me space armor." His arm was hard and strong when she grasped it, but when he stood beside her he was surprisingly short. "Go on, what then?"

She hurried on with her tale, while serving machines came to arm him. "But why were you frozen?" she ended, suddenly wondering at his health and strength.

He ignored the question. "Come along to Defense Control. We must save those men out there."

He went familiarly to the nerve center of the ship and hurled himself into the combat chair of the Defense Officer, who was probably dead. The panel before Karlsen came alight and he ordered at once: "Get me in contact with that courier."

Within a few moments a flat-sounding voice from the courier answered routinely. The face that appeared on the communication screen was badly lighted; someone viewing it without advance warning would not suspect that it was anything but human.

"This is High Commander Karlsen speaking, from the *Nirvana*." He did not call himself governor or lord, but by his title of the great day of the Stone Place. "I'm coming over there. I want to talk to you men on the courier."

The shadowed face moved slightly on the screen. "Yes sir."

Karlsen broke off the contact at once. "That'll keep its hopes up. Now I need a fast launch. You, robots, load my coffin aboard one. I'm on emergency revival

drugs now and if I live I may have to refreeze for a while."

"You're not really going there?"

Up out of the chair again, he paused. "I know berserkers. If chasing me is that thing's prime function it won't waste a shot or a second of time on a few hostages while I'm in sight."

"You can't go," Lucinda heard herself saying. "You mean too much to all men—"

"I'm not committing suicide, I have a trick or two in mind." Karlsen's voice changed suddenly. "You say Felipe's not dead?"

"I don't think so."

Karlsen's eyes closed while his lips moved briefly, silently. Then he looked at Lucinda and grabbed up paper and a stylus from the Defense Officer's console. "Give this to Felipe," he said, writing. "He'll set you and the captain free if I ask it. You're not dangerous to his power. Whereas I . . ."

VI

From the Defense Officer's position, Lucinda watched Karlsen's crystalline launch leave the *Nirvana* and take a long curve that brought it near the courier at a point some distance from the lifeboat.

"You on the courier," Lucinda heard him say. "You can tell it's really me here on the launch, can't you? You can DF my transmission? Can you photograph my retinas through the screen?"

And the launch darted away with a right-angle swerve, dodging and twisting at top acceleration, as the berserker's weapons blasted the space where it had been. Karlsen had been right. The berserker spent not a mo-

ment's delay or a single shot on the lifeboat, but hurled itself instantly after the launch.

"Hit that courier!" Lucinda screamed. "Destroy it!" A salvo of missiles left *Nirvana,* but it was a shot at a receding target, and it missed. Perhaps it missed because the courier was already in the fringes of the distortion surrounding the hypermass.

Karlsen's launch had not been hit, but it could not get away. It was a glassy dot vanishing behind a screen of blasts from the berserker's weapons, a dot being forced into the maelstrom of the hypermass.

"Chase them!" cried Lucinda, and saw the stars tint blue ahead; but almost instantly the *Nirvana*'s auto pilot countermanded her order, barking mathematical assurance that to accelerate any further in that direction would be fatal to all aboard.

The launch was now going certainly into the hypermass, gripped by a gravity that could make any engines useless. And the berserker-ship was going headlong after the launch, caring for nothing but to make sure of Karlsen.

The two specks tinted red, and redder still, racing before an enormous falling cloud of dust as if flying into a planet's sunset sky. And then the red shift of the hypermass took them into invisibility, and the universe saw them no more.

Soon after the robots had brought the men from the lifeboat safe aboard *Nirvana,* Holt found Lucinda alone in the Great Hall, gazing out the viewport.

"He gave himself to save you," she said. "And he'd never even seen you."

"I know." After a pause Holt said: "I've just been talking to the Lord Nogara. I don't know why, but you're to be freed, and I'm not to be prosecuted for

bringing the damned berserker aboard. Though Nogara seems to hate both of us . . ."

She wasn't listening, she was still looking out the port.

"I want you to tell me all about him some day," Holt said, putting his arm around Lucinda. She moved slightly, ridding herself of a minor irritation that she had hardly noticed. It was Holt's arm, which dropped away.

"I see," Holt said, after a while. He went to look after his men.

FREDERIK POHL's THE SECOND IF READER OF SCIENCE FICTION

"**Frederik Pohl,** editor of **If Magazine,** winner for the third consecutive year of the international Hugo award for the best science-fiction periodical, has selected 10 of his favorites for ***The Second If Reader.***

"The better pieces are exceptionally fine. **Isaac Asimov** is immensely entertaining with the tale of a perfect murder in the presence of witnesses. **Fred Saberhagen's** characters are superbly drawn in a tale of berserkers, those huge war machines set loose in the galaxy by a long-dead race. **Larry Niven** offers a well-written and imaginative adventure story about a trip to the center of the galaxy in a space ship with only one speed: forward. The best, ***Time Tombs,*** is by **J. G. Ballard,** the most skillful science fiction writer alive . . . His work is the best example in any genre to illustrate the successful application of fantasy to serious prose." —*Chicago Sun-Times*